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**REVISED DRAFT REGULATORY IMPACT ANALYSIS,
INITIAL REGULATORY FLEXIBILITY DETERMINATION,
TRADE IMPACT ASSESSMENT, AND UNFUNDED MANDATES**

**Security of Checked Baggage
On Flights Within the United States**

**Notice of Proposed Rulemaking
(14 CFR Part 108)**

**OFFICE OF AVIATION POLICY AND PLANS,
OPERATIONS REGULATORY ANALYSIS BRANCH, APO-310**

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**APRIL 1999
(Revised May 1999)**

MEMORANDUM TO THE DOCKET FOR THE NPRM FOR SECURITY OF CHECKED BAGGAGE ON FLIGHTS WITHIN THE UNITED STATES (Docket No. FAA-1999-5536)

The purpose of this memorandum is to explain the differences between the original version and the revised version of the full regulatory impact analysis (RIA) for the CAPS NPRM. The differences are as follows:

- On pages 74 and 75 of the original version of the of the RIA, Section C: Estimates of Future Costs of Compliance of the Federal Mandate, the words "in 1998 dollars" and "\$284 million per year" were inserted in lieu of the words "in 1997 dollars" and "\$234 million per year. These changes appear on page 68 of the revised version of the RIA. The original numbers (\$234 and 1997) were typographical errors.
- There have been other minor editorial changes made to this document. These changes were made to correct some grammatical errors or to improve the readability of the document.

Archie Muckle, Jr.
U.S. DOT, FAA, APO-310
May 1999

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY	i
I. INTRODUCTION	1
II. BACKGROUND	1
A. The Problem
B. The Proposed Rule
III. MAJOR ASSUMPTIONS	5
IV. ANALYSIS OF COSTS AND BENEFITS	7
A. Analysis of Costs	7
B. Analysis of Benefits	24
V. ANALYSIS OF ALTERNATIVES	35
VI. INITIAL REGULATORY FLEXIBILITY DETERMINATION AND ANALYSIS	44
A. Initial Reg Flex Determination	44
B. Initial Reg Flex Analysis	46
VII. INTERNATIONAL TRADE IMPACT ASSESSMENT	65
VIII. UNFUNDED MANDATES	66
APPENDIX A - DERIVATION OF EDS COSTS AND UNIT REQUIREMENTS FOR RIA ALTERNATIVES	A-1

EXECUTIVE SUMMARY

This draft regulatory impact analysis (RIA) examines the costs and benefits of an amendment to 14 CFR part 108 that would require air carriers, when operating flights within the United States with airplanes having a passenger seating configuration of more than 60 seats, to screen the checked baggage of passengers. The screening of checked baggage on domestic flights is intended to prevent or deter the introduction of explosives or incendiary devices into the cargo holds of airplanes. This proposal is necessary to provide a significantly higher level of security for domestic civil aviation in response to an increasing potential of terrorist acts.

The proposed rule may impose costs estimated at maximum to be \$2.8 billion (\$2.0 billion, discounted) over the next 10 years. These costs would be more than offset if they avoid a substantial number of fatalities by preventing several Class I Explosions on board aircraft (incidents that involve the loss of an entire aircraft and incur a large number of fatalities) in the United States over the next 10 years. Actual costs imposed by the proposed rule may be less than the maximum estimate if airlines are able to implement less costly procedures than those employed by some in the live baggage matching tests and to the extent that temporary, emergency security measures would endure in the absence of the proposed rule.

The proposed rule would impose a significant economic impact on a substantial number of small entities. In terms of international trade, the proposed rule would neither impose a competitive trade disadvantage to U.S. air carriers operating domestically nor to foreign air carriers deplaning or enplaning passengers within the United States. In terms of the unfunded mandates act, the proposed rule would impose a Federal mandate of greater than \$100 million per year on the private sector. Of all of the alternatives examined in this assessment of the Act and the analysis of alternatives section of the RIA, the proposed rule

provides the largest net benefit.

I. INTRODUCTION

This draft regulatory impact analysis (RIA) examines the costs and benefits of an amendment to 14 CFR part 108 that would require holders of air carrier operating certificates engaging in scheduled passenger operations to screen the checked baggage of passengers on flights within the United States, when conducting operations using an airplane having a passenger seating configuration of more than 60 seats. The screening of checked baggage on domestic flights may be accomplished by screening the checked baggage of every passenger with an FAA-certified explosives detection system (EDS) equipment, by using 100% positive passenger baggage matching procedures, or by utilizing an FAA-approved Computer Assisted Passenger Screening (CAPS) system for profiling airline passengers and screening the "selectees" checked baggage by EDS equipment, where available, or by employing passenger baggage matching procedures.

The screening of checked baggage requirements of the proposed rule is intended to prevent or deter the introduction of explosives or incendiary devices into the cargo holds of airplanes on flights within the United States. This proposal is necessary to provide a significantly higher level of security for domestic civil aviation.

II. BACKGROUND

A. The Problem

Over the past several years, the Federal Aviation Administration (FAA) has recognized that the threat against civil aviation is changing and growing. Terrorist and criminal activities within the United States have forced the FAA and other federal agencies to reevaluate the domestic threat against civil aviation. For example, investigations into the February 1993 attack on the World Trade Center (WTC) uncovered a foreign terrorist threat in the U.S. more serious than previously known. In addition, in 1995 a conspiracy was discovered involving Ramzi Ahmed Yousef

and co-conspirators opposing U.S. foreign policies in the Middle East who intended to bomb twelve American airliners over the Pacific Ocean. This conspiracy showed that: (1) foreign terrorists have the ability to operate in the U.S.; (2) foreign terrorists conducting future attacks in the U.S. may choose civil aviation as a target; and (3) foreign terrorists are capable of building and artfully concealing improvised explosive devices that pose a serious challenge to aviation security.

In addition to the potential for foreign terrorist groups to target flights within the United States, the 1995 bombing by Timothy McVeigh, of a federal office building in Oklahoma City, Oklahoma, point out the presence of domestic terrorist groups. Other acts of domestic terrorism, such as the following, indicate the magnitude of the threats against civil aviation:

- The 1979 partial detonation of a bomb aboard American Airlines flight 444 en route from Chicago to Washington, DC, which was attributed to Theodore Kaczynski (known as "the Unabomber").
- The crash of Pacific Southwest Airlines flight 1771 in 1987 after a recently fired employee boarded the airplane and shot his former supervisor and the flight crew, which led to the crash that killed everyone aboard;
- A 1995 threat (which did not materialize) from Theodore Kaczynski to blow up an aircraft departing Los Angeles International Airport within a six-day period.

The serious consequences of an in-flight explosion was dramatically demonstrated on July 17, 1996, when Trans World Airlines (TWA) flight 800 crashed off the coast of Long Island, New York. While the Federal Bureau of Investigation (FBI) and the National Transportation Safety Board (NTSB) determined that this accident was not the result of a terrorist act, it did elevate concerns regarding domestic civil aviation security. This concern led to the formation of the White House Commission

on Aviation Safety and Security (henceforth, referred to as "The Commission").

The Commission made several recommendations that were published on February 12, 1997, in its "Final Report to President Clinton." After reviewing civil aviation security, the Commission stated that "the threat of terrorism is changing...it is no longer just an overseas threat from foreign terrorists. People and places in the United States have joined the list of targets, and Americans have joined the ranks of terrorists." Therefore, the Commission recommended the screening or baggage matching of passenger checked baggage on domestic flights.

The Commission recommended that one of the steps that should be taken to improve airline passenger security is the implementation by the FAA of a computerized system for profiling airline passengers flying out of airports located in the United States. The purpose of automated profiling is to narrow the field of persons to whom heightened security measures should be applied. Accordingly, the proposed rule for automated profiling would identify the small percentage of air travelers who would merit additional attention, and it would exclude from the additional security measures the great majority of passengers who are very unlikely to present any risk. The Commission specifically endorsed the CAPS system developed jointly by the FAA and Northwest Airlines. The Commission recommended that the FAA implement the automated profiling system by December 31, 1997. That recommendation was linked by the Commission to its recommendation that the FAA begin implementation of passenger baggage matching for domestic flights. Passenger baggage matching involves matching the passengers who have boarded the airplane to the baggage that was checked for carriage in the airplane's baggage compartment. Thus, under this procedure, a passenger's checked baggage is flown only if he or she has boarded the airplane. Passenger baggage matching is designed to reduce the vulnerability of aircraft to explosives introduced in

checked baggage. The Commission stated that it "believes profiling is one part of a comprehensive, layered security program" aimed at keeping bombs and explosive devices off airlines; passenger baggage matching is another component.

B. The Proposed Rule

This proposed rule, if adopted, would amend 14 CFR part 108 to require each certificate holder that is required under §108.5 to adopt and implement the FAA-approved security program for each scheduled passenger operation to do the following:

- establish an FAA-approved CAPS system (or program) for evaluating each originating passenger checking baggage ;
- establish procedures to determine that the passenger associated with each originating checked bag is aboard the flight; or
- screen each originating bag not matched to a passenger aboard the flight by FAA-certified EDS equipment.

These requirements would only be imposed on certificate holders that engage in scheduled operations with an airplane having a passenger-seating configuration of more than 60 seats.

Certificate holders that are engaged in operations with an airplane having a passenger seating configuration of 60 or fewer seats may choose to comply with this requirement but they must adopt and implement a complete security program to do so.

For those certificate holders that implement an FAA-approved CAPS system, the small percentage of passengers for whom the CAPS system has identified as requiring heightened security measures would be designated as selectees and their checked baggage would be subjected to additional security measures. To further enhance the deterrence value of the system, the CAPS system would be required to also randomly select a small percentage of other passengers (the percentages will be specified in each air carrier's standard security program). The randomly selected

group's checked baggage would also be subject to the same types of additional security measures as the profiled selectees. These heightened security measures would include passenger baggage matching or EDS (where available). The Department of Justice has reviewed the FAA's proposed CAPS system and found there to be no infringements on civil liberties.

III. MAJOR ASSUMPTIONS AND DEFINITIONS

To facilitate this regulatory impact analysis (RIA), the following general assumptions and definitions have been employed, with more specific assumptions and definitions referred to those areas for which they apply:

A. Major Assumptions

1. The proposed rule is expected to be published in calendar year 1999.
2. The time horizon for this regulatory impact analysis is 10 years, 2000 to 2009.
3. Unless otherwise referenced, the source of all the data used in this analysis is the Department of Transportation, Federal Aviation Administration, Office of Policy and Plans, Operations Regulatory Analysis Branch (APO-310).
4. All monetary values are expressed in 1998 dollars. Present value estimates are calculated by discounting the monetary values using a 7 percent interest rate over the 10-year period.
5. The group of operators potentially affected in this analysis is part 108 scheduled air carriers operating airplanes with 61 or more passenger seats.
6. In this analysis, all cost estimates for passenger baggage matching are based on information received from SABRE Decision Technologies Group, South Lake, Texas (henceforth, referred to as "SABRE").
7. In this RIA, the term "Discounted" refers to "Net Present Value".
7. This RIA has estimated the costs of the proposed rule by examining the incremental changes from the existing Air

Carrier Security regulations rather than from procedures required by emergency, temporary security regulations?

B. Definitions

1. Missed-connection represents a connecting passenger that is a no-show for a flight due to the delayed arrival of their inbound flight.

2. Baggage Reconciliation represents the process of identifying baggage and verifying that it can be loaded onto the aircraft.

3. Passenger Profiling represents the process of selecting passengers that may impose a threat to civil aviation security. Air carriers take additional security measures (with more than 60 passenger seats) in the form of tracking their checked baggage from origin to destination. If the targeted passengers fail to board their respective flights, their baggage would be pulled and set aside, as part of the bag-to-passenger screening process.

4. Bag-to-Passenger. This process occurs for every bag subject to baggage matching that is to be loaded on the aircraft, whereby the air carrier must verify that there is an associated passenger on the passenger list. If a bag cannot be matched with a passenger on the list, the bag is set aside until verification is made.

5. Major air carriers ("majors") are defined those that generate annual operating revenues of more than \$1,000,000,000 plus.

6. National air carriers ("nationals") are defined those that generate annual operating revenues of \$100,000,000 to \$1,000,000,000.

7. Large Regional air carriers ("Large Regionals") are defined those that generate annual operating revenues of \$20,000,000 to \$99,999,999.

8. Medium Regionals air carriers ("Medium Regionals") are defined as those that generate annual operating revenues of \$0 to \$19,999,999.

¹ On occasion, the FAA establishes security measures on an emergency basis, typically through limited duration Security Directives (issued under 14 CFR 108.18) to respond to specific or assessed threats. For the past several years air carriers have been applying a manual passenger profile screening system, baggage matching passengers selected in most cases. At the time it was instituted, immediate implementation was deemed necessary to counter the then-prevailing security threat. These contingency measures are not permanent rules. Accordingly, FAA's RIA reflects the costs of instituting security measures beyond those required by permanent rules. To the extent that emergency security measures would continue to be implemented regardless of whether permanent regulations were issued, the cost of the proposed rule would be lower than estimated herein.

IV. ANALYSIS OF COSTS AND BENEFITS

A. Analysis of Costs

Although the proposed rule requires the use of EDS for CAPS selectees where available, the FAA was unable to develop a cost of compliance due to the lack of information on how many EDS each air carrier would need at each airport. Since interpretation of "where available" may differ among air carrier operators,² it becomes very difficult to estimate the potential cost of using EDS. As a result of this situation, the FAA estimated the cost of this proposed rule on the premise that all air carriers adopting CAPS would use passenger baggage matching as the screening measure. Passenger baggage matching represents a worst case scenario in terms of costs.

The proposed rule could impose an estimated maximum cost of compliance of \$2.8 billion (\$2.0 billion, discounted), in 1998 dollars, over the next 10 years (2000 - 2009) on part 108 scheduled air carriers operating airplanes with more than 60 passenger seats. This cost estimate is based three components: (1) Passenger Baggage Matching Implementation and Operating Costs (2) Passenger Baggage Matching Delay Costs, and (3) CAPS Program (or System) Costs. The manner by which costs have been estimated for each of these three cost components is discussed below.

Costs for the passenger baggage matching implementation, operating, and delay portions of the proposed rule were based on estimates by SABRE; SABRE based their costs on interpolation of data from a study of the operational feasibility and cost impact of requiring 100 percent positive passenger baggage matching (both origin and destination) for part 108 aircraft operators. The proposed rule anticipates that only 5 percent of baggage would be subject to baggage matching. In addition to SABRE, the National Center of Excellence in Aviation Operations Research

² The FAA recognizes that, because of various factors that play a role in baggage make-up operations (e.g., the physical layout of an airport's facilities), application of the

(referred to as COE)³ assisted in the assessment of costs for this proposed rule. The FAA used cost data developed by SABRE as the potential maximum as the costs of the proposed rule. cost estimates used in this RIA are based on an interpolation of cost data from an actual test of 100 percent positive passenger baggage matching with a wide diversion of cost experience by individual air carriers using procedures to accommodate all baggage. Substantially different and less expensive procedures with fewer delays and system-wide impacts may be applicable where baggage matching is done for a preselected group of travelers. Descriptions of the potentially less costly implementation of the proposed rule are discussed in the forthcoming "Report to Congress: Domestic Bag Match Pilot Program."

Passenger Baggage Matching Costs

Passenger Baggage Matching Methodology Overview

The estimated compliance costs for Passenger baggage matching is based on two key factors: (1) projected number of part 108 air carrier departures, for domestic operations, from 2000 to 2009 and (2) per departure cost for each of the principal passenger baggage matching cost components. Each of these two passenger baggage matching components is discussed below.

Passenger Baggage Matching Methodology for Estimating Air Carrier Departures

The FAA projected scheduled part 108 departures are based on data provided on Form 41.⁴ Since the proposed rule pertains to all scheduled part 108 aircraft operators of aircraft with more than 60 passengers seats, annual departures (domestic operations only) for all Form 41 operators for 1996 was requested from the U.S. Department of Transportation's Bureau of Transportation

"where available" provision will differ among air carrier operators.

³ COE includes selected personnel at the Massachusetts Institute of Technology, the University of California at Berkeley, and the State University of New York at Rochester. This organization was responsible for the technical methodology and approach for the live testing and subsequent positive passenger baggage matching analysis.

⁴ Air carrier operators whose fleet contains at least one aircraft with more than 60 passenger seats are required to report their operations data to BTS on U.S. DOT Form 41.

Statistics (BTS) . Given the number of annual departures for Form 41 air carriers for 1998, the FAA projected departures to 2009 by using projected annual growth rates for both domestic and international departures for these air carriers, as published in the FAA's Aviation Forecast for 1999 to 2010.⁵ The projected number of departures for each Form 41 air carrier was calculated by inflating the 1998 domestic departures by the projected growth for the years 1999 to 2010. The results of these projections are shown in Table 1. These projected departures were used to estimate the costs of implementing and operating passenger baggage matching.

At the FAA's request, SABRE developed cost estimates for passenger baggage matching, based on "live test data" and questionnaires received from seven major air carriers (within the "majors" group). These air carriers were asked to report on the cost of implementing and operating a 100 percent passenger baggage matching program. The estimates represent passenger baggage matching Direct and Indirect costs. Passenger baggage matching direct costs consist of the following components: Startup Costs (training, equipment, hardware, facilities), Annual Operating Costs (staffing of terminal and gate personnel, training, hardware, equipment, and facilities, and Delay costs (primarily, local delays, downstream delays and missed-connections).

In addition to the startup costs, SABRE also provided per departure estimates for all of the recurring/operating cost components. Passenger baggage matching cost estimates for the proposed rule are based on data received from seven majors for 100% baggage matching which has been adjusted to estimate costs of a 5% baggage matching procedure for those seven major air carriers and applied to various air carrier groups (majors, national/regional jets and national/regional turboprops). The

⁵ FAA Aerospace Forecasts (Fiscal Years 1999 - 2010), Table 28, PP 1X-30, U.S. DOT, FAA, March 1999, Report No. APO-99-1.

TABLE 1 - U.S. AIR CARRIER DOMESTIC DEPARTURES BY CARRIER GROUP

(Part 108 Air Carriers Potentially Impacted By The CAPS NPRM)

Air Carrier	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2008	2010
MAJORS:													
DELTA AIRLINES	906,756	925,779	951,143	970,166	1,001,870	1,033,575	1,065,280	1,096,985	1,128,689	1,160,394	1,198,440	1,230,145	1,268,190
UNITED AIR LINES	730,007	745,322	765,742	78 1,056	806,581	832,106	857,631	883,155	908,680	934,205	964,834	990,359	1,020,989
AMERICAN AIRLINES, INC	641,661	655,122	673,071	686,532	708,968	73 1,404	753,839	776,275	798,711	821,147	848,069	870,505	897,428
CONTINENTAL AIRLINES	393,613	401,871	412,881	421,138	434,901	448,664	462,426	476,189	489,952	503,715	520,230	533,992	550,508
SHUTTLE INC [USAIRWAYS INC]	703,425	718,182	737,858	752,616	777,211	801,806	826,401	850,997	875,592	900,187	929,702	954,297	983,811
SOUTHWEST AIRLINES	806,822	823,748	846,317	863,243	89 1,454	919,664	947,875	976,085	1,004,296	1,032,506	1,066,359	1,094,570	1,128,422
NORTHWEST AIRLINES INC	484,889	495,061	508,625	518,797	535,751	552,706	569,660	586,614	603,568	620,522	640,867	657.82 1	678,166
TRANS WORLD AIRLINES	268,552	274,186	28 1,698	287,332	296,722	306,112	315,502	324,892	334,282	343,671	354,939	364,329	375,597
AMERICA WEST AIRLINES INC	198,960	203,134	208,699	212,873	219,830	226,787	233,743	240,700	247,657	254,613	262,961	269,918	278,266
Subtotal	5,134,685	5,242,406	5,386,033	5,493,754	5,673,288	5,852,823	6,032,357	6,211,892	6,391,426	6,570,961	6,786,402	6,965,936	7,181,378
NATIONALS:													
SIMMONS AIRLINES [AMERICAN EAGLE]	182,175	185,996	191,092	194,914	201,284	207,653	214,023	220,393	226,763	233,132	240,776	247,146	254,790
HAWAIIAN AIRLINES INC	56,130	57,308	58,878	60,055	62,018	63,980	65,943	67,906	69,868	71,831	74,186	76,148	78,503
ALOHA AIRLINES	66,495	67,890	69,750	71,145	73,470	75,795	78,120	80,445	82,770	85,095	87,885	90,210	93,000
RENO AIR	62,359	63,667	65,412	66,720	68,900	71,081	73,261	75,441	77,622	79,802	82,419	84,599	87,215
ALASKA AIRLINES	149,299	152,431	156,607	159,739	164,960	170,180	175,400	180,620	185,841	191,061	197,325	202,545	208,810
HORIZON AIR IND	48,785	49,809	51,173	52,197	53,903	55,608	57,314	59,020	60,726	62,431	64,478	66,184	68,231
KIWI INTERNATIONAL	6,846	6,990	7,181	7,325	7,564	7,803	8,043	8,282	8,522	8,761	9,048	9,288	9,575
ATLANTIC SOUTHEAST AIRLINES	63,309	64,637	66,408	67,736	69,949	72,163	74,376	76,590	78,804	81,017	83,673	85,887	88,543
AIR WISCONSIN AIRLINES CORP-UNITED	58,821	60,055	61,700	62,934	64,991	67,048	69,104	71,161	73,218	75,274	77,742	79,799	82,267
MIDWEST EXPRESS AIRLINES	40,172	40,954	42,076	42,917	44,320	45,722	47,125	48,527	49,930	51,332	53,015	54,418	56,101
AMERICAN TRANS AIR INC.	46,935	47,920	49,233	50,217	51,858	53,499	55,140	56,782	58,423	60,064	62,033	63,674	65,643
MIDWAY AIRLINES	35,475	36,219	36,979	37,755	38,547	39,356	40,181	41,024	41,885	42,764	43,661	44,577	45,512
CONTINENTAL MICRONESIA AIRLINES	4,003	4,087	4,199	4,283	4,423	4,563	4,703	4,843	4,983	5,123	5,291	5,431	5,599
LOWE AIR	2,426	2,426	2,369	2,369	2,419	2,470	2,522	2,575	2,629	2,684	2,740	2,798	2,856
Subtotal	822,370	846,233	883,888	880,307	908,505	938,922	985,258	993,609	1,021,981	1,050,371	1,084,273	1,112,704	1,146,646
LARGE REGIONALS:													
AIR TRAN AIRLINES (formerly known as ValuJet)	74,930	76,502	78,598	80,170	82,790	85,410	88,030	90,650	93,270	95,889	99,033	101,653	104,797
MESABA AIRLINES	72,771	74,297	76,333	77,859	80,404	82,948	85,493	88,037	90,582	93,126	96,179	98,724	101,777
FRONTIER AIRLINES	21,087	21,966	23,670	23,642	24,415	25,187	25,960	26,733	27,505	28,278	29,205	29,978	30,905
UES INC [UNITED EXPRESS]	20,962	21,402	21,988	15,998	16,520	17,043	17,566	18,089	18,612	19,134	19,762	20,285	20,912
REEVE-ALEUTIAN AIRWAYS INC	3,377	3,448		22,428	23,161	23,894	24,627	25,360	26,093	26,825	27,705	28,438	29,317
Subtotal	209,089	213,475	213,542	222,528	227,194	231,981	238,827	241,795	248,868	252,047	257,335	282,733	288,245
MEDIUM REGIONALS:													
PROAIR AIRLINES	5,125	5,233	5,342	5,454	5,569	5,686	5,805	5,927	6,051	6,178	6,308	6,440	6,575
EASTWIND AIRLINES	18,893	19,289	5,694	5,813	5,935	6,059	6,187	6,316	6,449	6,584	6,722	6,863	7,007
VANGUARD AIRLINES			19,818	20,214	20,875	21,535	22,196	22,857	23,517	24,178	24,970	25,631	26,424
Subtotal	29,480	30,098	30,854	31,482	32,379	33,280	34,187	35,100	36,017	36,940	37,800	38,934	40,006
TOTAL (domestic departures)	6,196,224	6,326,214	6,497,849	6,628,068	6,841,467	7,054,986	7,268,628	7,482,396	7,696,292	7,910,319	8,166,010	8,380,308	8,636,275
BY YEAR													

Source: U.S. DOT, BTS and FAA (APO-310), April 1999.

identity of specific air carriers that reported cost data in the initial 100% baggage matching study cannot be disclosed in this analysis for proprietary reasons.

Passenger Baggage Matching Cost Impact on Part 108 Air Carriers⁶

The proposed rule would impose an estimated cost of \$2.8 billion (\$2.0 billion, discounted), over the next 10 years in 1998 dollars, for passenger baggage matching. This cost estimate is composed of two primary cost components: (1) Passenger Baggage Matching Startup and Operating Costs and (2) Passenger Baggage Matching Delay Costs. The manner by which costs for each of these two components were derived will be discussed in the following sections.

1. Passenger Baggage Matching Startup Costs

Based on cost information received from SABRE, passenger baggage matching startup costs for all impacted air carriers would amount to an estimated \$217 million (\$203 million, discounted) over the next 10 years, as shown using two different formats in Tables 2 (by cost component) and 3 (by air carrier group). Startup costs consist of several components. First, there is initial training for gate agents, ramp personnel, and skycap personnel. Air carriers would be expected to train their airport personnel in order to ensure compliance with the proposed rule. This training would familiarize airport terminal personnel with the new requirements of passenger baggage matching procedures for 5 percent passenger profiling.

At some airports, skycap personnel currently load passenger baggage on a conveyer belt in the curbside area. Under the proposed rule, air carriers would have to either train skycap personnel or use trained ticket agents to handle the baggage of those passengers selected by CAPS. Second,

⁶ This and all cost information for PPBM were obtained from SABRE Decision Technologies Group, coupled with discussions with consultants from the National Center of Excellence in Aviation Operations Research (COE) at MIT.

TABLE 2 - COST OF COMPLIANCE SUMMARY BY COST COMPONENT: CAPS NPRM, REVISED WITH TURBOPROPS
(1996 Dollars, 10 Years)

COST COMPONENTS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL	TOTAL, PV
PPBM Costs for Majors, National (jet), and Regional (jet):												
Startup	\$217,371,217	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$217,371,217	\$203,155,140
Equipment and Hardware	\$31,684,823	\$32,319,850	\$33,359,821	\$34,400,402	\$35,441,607	\$36,483,448	\$37,525,939	\$38,569,094	\$39,615,099	\$40,659,623	\$360,459,708	\$249,134,264
Staffing	\$143,041,675	\$145,906,413	\$150,626,951	\$155,349,281	\$160,073,441	\$164,799,469	\$169,527,405	\$174,257,288	\$179,916,181	\$184,650,082	\$1,628,148,185	\$1,125,228,910
Training	\$787,577	\$803,361	\$829,212	\$855,077	\$880,958	\$906,854	\$932,767	\$958,696	\$989,668	\$1,015,631	\$8,959,802	\$6,192,630
Subtotal	\$392,885,292	\$179,029,625	\$184,815,983	\$190,604,760	\$196,396,006	\$202,189,772	\$207,986,111	\$213,785,078	\$220,720,948	\$226,525,336	\$2,214,938,912	\$1,583,710,943
PPBM Costs for National (turboprops) and Regional (turboprops):												
Startup	\$1,320,734	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,320,734	\$1,234,358
Equipment and Hardware	\$549,122	\$560,105	\$578,409	\$596,713	\$615,017	\$633,321	\$651,625	\$669,929	\$691,894	\$710,198	\$6,256,332	\$4,323,261
Staffing	\$2,191,755	\$2,235,590	\$2,308,649	\$2,381,707	\$2,454,766	\$2,527,824	\$2,600,882	\$2,673,941	\$2,761,611	\$2,834,670	\$24,971,394	\$17,255,776
Training	\$14,201	\$14,485	\$14,959	\$15,432	\$15,906	\$16,379	\$16,852	\$17,326	\$17,894	\$18,367	\$161,802	\$111,808
Subtotal	\$4,075,812	\$2,810,180	\$2,902,016	\$2,993,852	\$3,085,688	\$3,177,524	\$3,269,360	\$3,361,196	\$3,471,399	\$3,563,235	\$32,710,262	\$22,925,203
PPBM Delay Costs for Majors National (jet) and Regional (jet):												
Local Air Carrier Delays	\$26,171,785	\$26,696,320	\$27,555,340	\$28,414,864	\$29,274,903	\$30,135,468	\$30,996,570	\$31,858,219	\$32,887,424	\$33,750,205	\$297,741,097	\$205,785,854
Downstream Air Carrier Delays	\$11,874,236	\$12,112,219	\$12,501,960	\$12,891,929	\$13,282,132	\$13,672,573	\$14,063,258	\$14,454,192	\$14,921,146	\$15,312,593	\$135,086,239	\$93,365,804
Passenger Misconnects	\$1,635,737	\$1,668,520	\$1,722,209	\$1,775,929	\$1,829,681	\$1,883,467	\$1,937,286	\$1,991,139	\$2,055,464	\$2,109,388	\$18,608,819	\$12,861,616
Extended Operating Days	\$1,393,405	\$1,421,332	\$1,467,067	\$1,512,828	\$1,558,618	\$1,604,435	\$1,650,280	\$1,696,155	\$1,750,951	\$1,796,886	\$15,851,957	\$10,956,191
Subtotal	\$41,075,163	\$41,898,391	\$43,246,575	\$44,595,550	\$45,945,334	\$47,295,943	\$48,647,394	\$49,999,705	\$51,614,985	\$52,969,071	\$467,288,111	\$322,969,466
PPBM Delay Costs for National (turboprops) and Regional (turboprops):												
Local Air Carrier Delays	\$293,496	\$299,366	\$309,149	\$318,933	\$328,716	\$338,499	\$348,282	\$358,066	\$369,805	\$379,589	\$3,343,902	\$2,310,709
Downstream Air Carrier Delays	\$208,288	\$212,453	\$219,396	\$226,339	\$233,282	\$240,225	\$247,168	\$254,111	\$262,443	\$269,385	\$2,373,091	\$1,639,858
Passenger Misconnects	\$28,403	\$28,971	\$29,918	\$30,864	\$31,811	\$32,758	\$33,705	\$34,652	\$35,788	\$36,734	\$323,603	\$223,617
Extended Operating Days	\$23,669	\$24,142	\$24,931	\$25,720	\$26,509	\$27,298	\$28,087	\$28,876	\$29,823	\$30,612	\$269,669	\$186,347
Subtotal	\$553,856	\$564,933	\$583,395	\$601,857	\$620,319	\$638,781	\$657,242	\$675,704	\$697,859	\$716,320	\$6,310,266	\$4,360,531
CAPS Program Costs:												
Software Design & Construction ¹	\$11,740,289	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,740,289	\$10,972,474
System Testing ¹	\$852,647	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$852,647	\$796,884
Implementation ¹	\$655,882	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$655,882	\$612,987
Accommodation for DOJ Inquiries ¹	\$2,229,999	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,229,999	\$2,084,157
Initial Labor/Training ¹	\$2,164,411	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,164,411	\$2,022,858
Hardware & software maintenance ²	\$0	\$2,609,188	\$2,693,367	\$2,777,587	\$2,861,849	\$2,946,154	\$3,030,502	\$3,114,894	\$3,215,778	\$3,300,262	\$26,549,582	\$17,726,549
Accommodation for DOJ Inquiries ²	\$0	\$334,511	\$345,303	\$356,101	\$366,904	\$377,712	\$388,526	\$399,345	\$412,279	\$423,111	\$3,403,793	\$2,272,635
Labor/Training ²	\$0	\$2,207,775	\$2,279,003	\$2,350,266	\$2,421,565	\$2,492,899	\$2,564,271	\$2,635,680	\$2,721,043	\$2,792,530	\$22,465,031	\$14,999,388
Subtotal	\$17,643,228	\$5,151,474	\$5,317,674	\$5,483,954	\$5,650,318	\$5,816,765	\$5,983,298	\$6,149,920	\$6,349,100	\$6,515,903	\$70,081,633	\$51,487,932
COSTS PER YEAR	\$456,233,351	\$229,454,603	\$236,865,643	\$244,279,974	\$251,697,664	\$259,118,784	\$266,543,406	\$273,971,603	\$282,854,291	\$290,289,865	\$2,791,309,183	\$1,985,454,075
COSTS PER YEAR, PV	\$426,395,690	\$200,405,650	\$193,353,424	\$186,361,192	\$179,460,434	\$172,650,846	\$165,976,579	\$159,451,473	\$153,844,449	\$147,554,338		

¹ Represents first year costs only (2000)

² Represents costs from second to last year (2001 - 2009)

Source: U.S. DOT, FAA, APO-310, APRIL 1999

TABLE 3 - COST OF COMPLIANCE SUMMARY BY AIR CARRIER GROUP- CAPS NPRM, REVISED WITH TURBOPROPS
(1998 Dollars, 10 Years)

COST COMPONENTS												
BY CARRIER GROUP:	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL	TOTAL, PV
PPBM Costs - Startup												
Majors	\$195,183,381	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$195,183,381	\$182,418,387
National - Jet	\$17,852,492	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$17,852,492	\$16,684,939
Regional - Jet	\$4,335,344	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,335,344	\$4,051,813
Subtotal	\$217,371,217	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$217,371,217	\$203,155,140
PPBM Costs - Startup												
National - Turboprop	\$1,043,675	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,043,675	\$975,419
Regional - Turboprop	\$277,059	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$277,059	\$258,939
Subtotal	\$1,320,734	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,320,734	\$1,234,358
PPBM Costs - Annual												
Majors	\$162,707,216	\$165,961,360	\$171,384,934	\$176,808,508	\$182,232,082	\$187,655,656	\$193,079,230	\$198,502,804	\$205,011,092	\$210,434,666	\$1,853,777,548	\$1,281,000,529
National - Jet	\$10,304,490	\$10,511,385	\$10,845,074	\$11,179,133	\$11,513,568	\$11,848,389	\$12,183,603	\$12,519,218	\$12,918,459	\$13,254,902	\$117,078,222	\$80,933,102
Regional - Jet	\$2,502,368	\$2,556,879	\$2,585,975	\$2,617,120	\$2,650,356	\$2,685,727	\$2,723,279	\$2,763,057	\$2,791,397	\$2,835,767	\$26,711,925	\$18,622,174
Subtotal	\$175,514,075	\$179,029,625	\$184,815,983	\$190,604,760	\$196,396,006	\$202,189,772	\$207,986,111	\$213,785,078	\$220,720,948	\$226,525,336	\$1,997,567,695	\$1,380,555,804
PPBM Costs - Annual												
National - Turboprop	\$2,177,129	\$2,220,671	\$2,293,242	\$2,365,813	\$2,438,384	\$2,510,955	\$2,583,526	\$2,656,097	\$2,743,182	\$2,815,753	\$24,804,751	\$17,140,621
Regional - Turboprop	\$577,950	\$589,509	\$608,774	\$628,039	\$647,304	\$666,569	\$685,834	\$705,099	\$728,217	\$747,482	\$6,584,777	\$4,550,224
Subtotal	\$2,755,079	\$2,810,180	\$2,902,016	\$2,993,852	\$3,085,688	\$3,177,524	\$3,269,360	\$3,361,196	\$3,471,399	\$3,563,235	\$31,389,528	\$21,690,845
PPBM Delay Costs												
Majors	\$36,882,478	\$37,620,128	\$38,849,544	\$40,078,960	\$41,308,376	\$42,537,792	\$43,767,208	\$44,996,623	\$46,471,923	\$47,701,339	\$420,214,369	\$290,377,251
National - Jet	\$3,373,464	\$3,441,197	\$3,550,440	\$3,659,803	\$3,769,290	\$3,878,903	\$3,988,644	\$4,098,517	\$4,229,220	\$4,339,364	\$38,328,843	\$26,495,723
Regional - Jet	\$819,221	\$837,066	\$846,592	\$856,788	\$867,668	\$879,248	\$891,542	\$904,564	\$913,842	\$928,368	\$8,744,899	\$6,096,491
Subtotal	\$41,075,163	\$41,898,391	\$43,246,575	\$44,595,550	\$45,945,334	\$47,295,943	\$48,647,394	\$49,999,705	\$51,614,985	\$52,969,071	\$467,288,111	\$322,969,466
PPBM Delay Costs												
National - Turboprop	\$437,670	\$446,424	\$461,013	\$475,602	\$490,191	\$504,780	\$519,369	\$533,968	\$551,464	\$566,053	\$4,986,522	\$3,445,795
Regional - Turboprop	\$116,186	\$118,510	\$122,382	\$126,255	\$130,128	\$134,001	\$137,874	\$141,747	\$146,394	\$150,267	\$1,323,744	\$914,736
Subtotal	\$253,856	\$264,933	\$283,395	\$291,857	\$320,319	\$338,781	\$357,242	\$375,704	\$397,859	\$416,320	\$6,310,266	\$4,360,531
CAPS Costs - Startup¹												
Majors	\$14,633,314	so	\$0	\$0	so	\$0	so	\$0	\$0	\$0	\$14,633,314	\$13,676,295
National	\$2,333,929	so	\$0	\$0	\$0	\$0	so	\$0	\$0	so	\$2,333,929	\$2,181,290
Regional	\$675,985	so	so	\$0	\$0	\$0	\$0	\$0	\$0	so	\$675,985	\$631,775
Subtotal	\$17,643,228	so	\$0	so	\$0	\$0	so	so	so	\$0	\$17,643,228	\$16,489,360
CAPS Costs - Annual²												
Majors	\$0	\$4,272,492	\$4,412,116	\$4,551,740	\$4,691,364	\$4,830,988	\$4,970,612	\$5,110,236	\$5,277,785	\$5,417,409	\$43,534,743	\$29,063,172
National	\$0	\$681,440	\$703,687	\$725,936	\$748,185	\$770,436	\$792,687	\$814,939	\$841,633	\$868,887	\$6,942,829	\$4,634,982
Regional	\$0	\$197,542	\$201,870	\$206,278	\$210,768	\$215,341	\$220,000	\$224,745	\$229,682	\$234,607	\$1,940,833	\$1,300,419
Subtotal	\$0	\$5,151,474	\$5,317,674	\$5,483,954	\$5,650,318	\$5,816,765	\$5,983,298	\$6,149,920	\$6,349,100	\$6,515,903	\$52,418,405	\$34,998,572
COSTS PER YEAR	\$456,233,351	\$229,454,603	\$236,865,643	\$244,279,974	\$251,697,664	\$259,118,784	\$266,543,406	\$273,971,603	\$282,854,291	\$290,289,865	\$2,791,309,183	\$1,985,454,075
COSTS PER YEAR, PV	\$426,395,690	\$200,405,650	\$193,353,424	\$186,361,192	\$179,460,434	\$172,650,846	\$165,976,579	\$159,451,473	\$153,844,449	\$147,554,338		

Source. U S. DOT, FAA, APO-310. April 1999.

¹ Represents first year costs only

² Represents costs from second to last year (2001 - 2009)

additional hardware would be needed. Hardware would primarily consist of additional boarding pass readers, communications equipment, barcode scanners, and magnetic strip readers. Third, equipment such as radios and carts would be needed. Fourth, some airport facilities would need to be changed. The ticket counter, curbside, and gate areas may have to be expanded as a means of accommodating the implementation of passenger baggage matching requirements. Additional staffing would be needed, such as additional gate agents and ramp personnel to minimize the number of lost or mishandled bags.

SABRE obtained aggregated startup costs of \$141 million (in 1997 dollars; this cost estimate was subsequently updated to 1998 dollars using the appropriate GDP Implicit Price Deflator) from seven major air carriers. To estimate startup costs for the two major air carriers that did not report cost data, SABRE projected the cost based on annual departures.⁷ The startup cost rate for "majors" was \$36.24 per departure. This estimate was derived by dividing the startup costs of \$141 million by the number of 1997 domestic departures for those seven "majors" air carriers that participated in SABRE's survey and then updated to 1998 dollars.

For "national" and "regional" jet air carriers, the same startup cost of \$36.24 per departure was used to estimate their startup costs. While this startup rate for national and regional jet operators may be higher than what they may actually incur, the FAA believes that this procedure provides a reasonable first approximation of startup costs for this group of operators. However, nationals and regional operators operate on a much smaller scale than the majors do. There is uncertainty associated this cost

⁷ SABRE believed this procedure would take into account the size the air carriers' operations on start-up costs. A simple average of the seven reporting air carriers' costs would have significantly overestimated or understated the startup costs for the two air

estimate for regional and national air carriers, and the FAA therefore solicits comments from the aviation industry as to what would be an accurate estimate of their respective passenger baggage matching startup costs.

For "national" and "regional" turboprop air carriers, a startup rate estimate of \$2.82 per departure was estimated by SABRE, based on an earlier report (March 1996) for 100 percent passenger baggage matching for "national" and "regional" turboprop air carriers.⁸ The estimate of \$2.82 reflects an estimate of passenger baggage matching with a 5 percent selectee rate. Turboprop airplane operators conduct significantly smaller scale operations than the jet air carriers in the aforementioned categories. They have less employees, lower wage rates, smaller airplanes, etc. "regional" turboprop air carriers.⁹ The estimate of \$2.82 reflects an estimate of passenger baggage matching with a 5 percent selectee rate. Turboprop airplane operators conduct significantly smaller scale operations than the jet air carriers in the aforementioned categories. They have less employees, lower wage rates, smaller airplanes, etc.

2. Passenger Baggage Matching Operating costs (excluding delays)

Passenger Baggage matching operating costs would impose an estimated \$2.0 billion (\$1.4 billion, discounted) over the next 10 years. This is comprised of equipment and hardware costs (\$360 million), staffing costs (\$1.6 billion) and training costs (\$9 million) and is based on cost information received from SABRE. Annual costs were derived by multiplying the cost per departure for each component (given in Table 4) times the number of projected domestic departures for part 108 air carriers (shown in Table 1).

⁸ carriers that did not report cost data.

⁸ Positive Passenger Baggage Matching (PPBM) Project, SABRE Decision Technologies Group and DCS, Inc., Report No. DOT/FAA/CT-95/44, March 1996, Contract No. DTFA03-93-C-00042.

⁹ Positive Passenger Baggage Matching (PPBM) Project, SABRE Decision Technologies Group and DCS, Inc., Report No. DOT/FAA/CT-95/44, March 1996, Contract No. DTFA03-93-C-00042.

The results of these calculations are presented in Tables 2 and 3.

Rates provided in Table 4 refer to recurring maintenance, staffing, and staff training for passenger baggage matching profiling requirements of the proposed rule for CAPS.

TABLE 4: Passenger Baggage Matching Operating Costs Per Departure By Air Carrier Group (1998 Dollars)	
Majors:	
\$24.59	per departure for staffing
\$ 5.38	per departure for equipment and hardware
\$ 0.32	per departure for training
\$30.30	per departure (Total)
Nationals (jets) and Regionals (jets):	
\$15.50	per departure for staffing
\$ 5.38	per departure for equipment and hardware
\$ 0.32	per departure for training
\$21.19	per departure (Total)
Nationals and Regionals with Turboprops only:	
\$4.68	per departure for staffing
\$1.17	per departure for equipment and hardware
\$0.03	per departure for training
\$5.88	per departure (Total)

Source: SABRE Decision Technologies Group and updated to 1998 dollars by FAA, April 1999.

3. Passenger Baggage Matching Delay Costs

Passenger baggage matching delay costs would impose an estimated \$467 million (\$323 million, discounted) over the next 10 years.¹⁰ These costs consist of local air carrier delays (\$298 million), downstream delays (\$135 million), passenger missed connections (\$19 million), and extended operating days (\$16 million). These costs, based on information received from SABRE and were derived by multiplying the cost per departure for each component (see Table 5) times the number of projected annual domestic

¹⁰ This amount is equal to 0.1% of the delay costs incurred by the entire air carrier system on an annual basis. This fraction was calculated by dividing \$483 million into the

departures to calculate the results provided in Tables 2 and 3.

TABLE 5 - Passenger Baggage Matching Delay Cost Per Departure By Air Carrier Group (1998 Dollars)
Majors, Nationals (jets) and Regionals (jets):
\$4.36 per departure for local air carrier delays
\$1.98 per departure for downstream delays
\$0.27 per departure for passenger missed-connects
\$0.23 per departure for extended operating days
\$6.85 per departure (Total)
Nationals and Regionals with Turboprops only:
\$0.63 per departure for local air carrier delays
\$0.44 per departure for downstream delays
\$0.06 per departure for passenger missed-connects
\$0.05 per departure for extended operating days
\$1.18 per departure (Total)

Source: SABRE Decision Technologies Group and updated to 1998 dollars by FAA, April 1999.

The passenger baggage matching delay cost estimates are from the SABRE Decision Technologies Group's Dependability Predictor Model (DPM) . The DPM is a proprietary simulation model that was developed for use by a major airline. The DPM model analyzes schedule performance for a typical day by focusing on delays that could affect the scheduled operations. The model uses historical data distributions for gate delays (ramp service, passenger service, mechanical delays, air traffic control (ATC) gate holds, etc.) and block time delays to simulate the movement of each flight within the schedule. The model also accounts for flight delays that are caused by late arriving equipment (due to other delays on the same aircraft) or late arriving connecting passengers (due to other delays on other aircraft). The model calculates the total gate delay and

total delay cost in 1995, \$9.5 billion.

passenger missed connections that result from the operation of the schedule(s)¹¹.

Because the passenger baggage matching costs for the 5 percent selectee rate have been extrapolated both from the live operational test and the answers to questionnaires, both of which were based on 100 percent passenger matching program, the FAA believes there is still uncertainty associated with cost estimates for startup, operations, and delay for major, national and regional air carriers. As the result of this uncertainty, the FAA solicits comments from the aviation industry on startup, operating, and delay costs for compliance with the passenger baggage matching procedures portion of this proposed rule.

CAPS Program Costs

CAPS Implementation Costs

Part 108 air carriers expected to install CAPS on their computer reservation systems (CRS's), as the result of this proposed rule, would incur an estimated total compliance cost of about \$70 million (\$51 million, discounted) over the next 10 years, in 1998 dollars, \$8 million from the Federal Government. First year costs (2000) are estimated to be \$18 million (\$17 million, discounted). The cost of compliance for subsequent years (2001 - 2009) would amount to an estimated \$52 million (\$35 million, discounted), as shown previously in Tables 2 and 3.

The CAPS implementation costs estimates were determined by first estimating how much each air carrier would need to spend for specific cost components.¹² The costs that each air carrier would need to spend for each component were summed and then divided by

¹¹ Positive Passenger Baggage Matching (PPBM) Project, U.S. Department of Transportation (DOT), Federal Aviation Administration (FAA), Report No. DOT/FAA/CT-95/44, PP 13-14, March 1996, Prepared by DCS, Inc. and SABRE Decision Technologies for the FAA (Contract No. DTFA03-93-C-00042).

¹² The individual cost components for the first year include software design and construction, system testing, system implementation, accommodations (for example, additional capacity, etc.) for Department of Justice (DOJ) inquiries into how the air carriers are complying with the DOJ recommendations outlined in the Preamble, and check-in personnel training costs. Subsequent year cost components include hardware and software maintenance, additional capacity for responding to DOJ inquiries, and recurrent check-in personnel training. These cost estimates have been updated to 1998 dollars, however.

1998 departures (as shown previously in Table 1) to get a per departure cost for each component. The per departure costs, for each component, were then multiplied times the projected departures to obtain estimates of the annual costs for the ten year period, 2000 to 2009.¹³

Some air carriers are expected to develop their own CAPS program for their Computer Reservation System (CRS) while others are expected to join another air carrier's existing system. The costs for those air carriers joining another air carrier's CAPS program would be less than would be the costs for developing their own CAPS program.

The entire CAPS program is made up of three components. These three components include the computer program, individual screens that would be unique to each air carrier, and data gatherers. As part of the agreement between the FAA and Northwest Airlines, all air carriers can obtain the necessary licenses to use the computer program free of charge; however, all air carriers would incur costs modifying both the interface between CAPS and the rest of the system and the individualized screens for their specific needs.

For the original work of establishing CAPS on their CRS, air carriers would have three viable options. Each of the three options are discussed as follows:

- Option 1 - Join another air carrier's CRS.¹⁴ This alternative would be the easiest and the least costly. Initial set-up costs consist of air carrier system tests and computer personnel training. The FAA anticipates that most of the air commuter links would adopt this option.

¹³ The FAA has cost estimates for these components for each air carrier for 1997 and determined that the best way to project costs would be to calculate the per departure costs for each component. These per departure costs would be multiplied by the total departures for the years covered by this analysis. Accordingly, in the discussion of these components, all cost will be shown in terms of per departure costs.

¹⁴ For the purpose of this analysis, the FAA is using "join" to connote when an air carrier elects to use another air carrier's CRS and not develop their own. The "joining" air carrier would use this CRS and accompanying software to link to their own databases for CAPS purposes.

- a Option 2 - Start from scratch. For air carriers that do have a remote data source (i.e., a computer located away from the CRS), costs would have to include an additional file server and customized software; some air carriers keep their frequent flyer data on such a computer. Air carriers that would adopt this option would be those whose computers would not accept the original source code developed for CAPS or would want more privacy due to proprietary data.
- Option 3 - Use part of the existing CAPS and re-do other portions. Under this option, the air carrier's costs would be somewhere between Options 1 and 2.

First Year Costs

The U.S. Congress has appropriated \$8.0 million to the FAA to pay for the necessary software, hardware, and other costs needed to get the CAPS program up and running.¹⁵ The FAA has established an Integrated Product Team (IPT) to work with the air carriers to determine their individual needs. The cost estimates gathered by the IPT were used by the FAA in this analysis to help determine first year implementation costs for the following components: software design, system testing, and system implementation;¹⁶ the FAA divided the total costs among these three components for all air carriers by the total number of departures to obtain the per departure costs at \$1.81, \$0.13, and \$0.10, respectively.

Due to the need to keep records for DOJ inquiries, each air carrier would need to add additional computer capacity. To set up a data base for statistical reporting, each air carrier constructing its own CAPS would need to spend approximately \$80,000 in development costs, \$50,000 in hardware costs, and \$20,000 in communication equipment costs. This analysis estimates that costs for those air carrier's joining another CRS would be about 25% of each of these development, hardware, and

¹⁵ This does not include the \$2.5 million that the FAA had awarded to Northwest Airlines to develop CAPS.

¹⁶ Cost information for all the air carriers, which will construct CAPS on their own CRS, was available from the IPT, or, in one instance, from that air carrier's Principal Security Inspector (PSI). Because every air carrier's requirements are different, there is no uniform cost estimate for Options 1, 2, and 3. Information for some of the air carriers that would be joining another air carriers CRS were also available from the IPT. All information obtained from the IPT and the PSI is proprietary. For those air carriers that have not submitted a cost estimate with the IPT, their costs have been estimated from the IPT costs of similar-sized air carriers at \$115,200.

communication equipment costs, based on information received from FAA's technical personnel in the Office of Civil Aviation Security. The per departure cost, for all air carriers, is estimated to be \$0.34.

All check-in personnel would need training. Industry sources indicate that these personnel, who earn, on average, \$21.70 per hour for the majors and \$13.65 per hour for the nationals and regionals, would need to be trained after their normal working hours, so their training costs would need to be adjusted for overtime by multiplying their base salary by 1.5. Figuring in fringe benefits at additional 26% yields a loaded hourly training labor cost estimate of \$41.01 for the majors and \$25.80 for the nationals and regionals. Most check-in personnel would need one hour of training annually. Certain personnel, who would act as a liaison and would be available for troubleshooting, would require a full day of training; the FAA estimates that 0.2% of check-in personnel would require this full day of training. The per departure cost is estimated to be \$0.33.

Subsequent Year Costs

Each air carrier would have hardware and software maintenance costs in the subsequent years. Industry sources indicate that hardware costs would average about \$10,000 per month per air carrier that developed its own CAPS and \$2,500 per month for each air carrier that would join to an existing CAPS CRS. Software costs were estimated at 10% of the development costs. The FAA worked with Northwest Airlines to develop a model to determine subsequent year software maintenance costs, and these depended on which of the aforementioned options the air carrier had chosen:

- Option 1 - The FAA assumes that these air carriers would need to spend about \$10,000 annually for maintenance.
- Option 2 - For those air carriers that do not have a remote data source, annual maintenance costs would range from approximately \$36,000 and \$50,000; the former figure assumes the use of in-house personnel while the latter assumes the use of contractors. For air carriers that do have a remote

data source (i.e., a computer located away from the CRS), the annual maintenance costs on the additional file server and customized software is estimated at \$5,300 and between \$75,000 and \$95,000, respectively."

- Option 3 - Their annual maintenance costs would be somewhere in-between Options 1 and 2; the FAA is assuming \$30,000.

The cost per departure for hardware and software maintenance is estimated to be \$0.39.

The FAA estimates that the annual maintenance costs for DOJ inquiries are estimated at about \$20,000 per year for those air carriers creating their own CAPS program and approximately \$5,000 per year for those joining another air carrier's CRS. The same amount of staff training would be required annually for the check-in personnel as was required in the first year; most needing one hour with a select few needing a full day. The per departure costs for the DOJ inquiries and training are \$0.05 and \$0.33, respectively. Hence, first year costs sum to \$2.71 per departure, while subsequent year costs sum to \$0.77 per departure. Table 6 sums up the CAPS program related per departure costs by component:

¹⁷ For air carriers which modify the interface and screens, industry sources indicate that annual maintenance would take an air carrier between 400 to 600 hours; the FAA will assume 500 hours in this analysis. The cost would vary per airline; it could be as low as \$72/hr if the air carrier uses internal CRS employees, which are the employees of the CRS that that air carrier uses (for example, Northwest Airlines using Worldspan employees or American Airlines using SABRE employees). This hourly cost would include salary, benefits, and overhead. Otherwise, it would be \$100/hr if the air carrier were to go outside of their own corporate structure and use external CRS employees (i.e., employees of a CRS that that airline does not use). In addition, if some of the air carrier's data were on a remote data source, annual maintenance costs would include an additional 200 hours.

TABLE 6 - CAPS Program Implementation and Operating Costs (1998 Dollars)	
CAPS Component	Cost Per Departure
FIRST YEAR COSTS	
Software design and construction	\$1.81
System Testing cost	\$0.13
Implementation Cost	\$0.10
Additional capacity for DOJ inquiries	\$0.34
Initial Labor/Training	\$0.33
TOTAL FIRST YEAR COSTS	\$2.71
RECURRING COSTS	
Hardware and Software Maintenance	\$0.39
Additional capacity for DOJ inquiries	\$0.05
Labor/Training	\$0.33
TOTAL RECURRING COSTS	\$0.77

Source: U.S., DOT, FAA, APO-310, April 1999.

In summary, the proposed rule would impose compliance costs of \$2.8 billion (\$2.0 billion, discounted), over 10 years. This estimate is composed of the following components:

- **Passenger Baggage Matching - Startup Costs:**
\$217 million (\$203 million, discounted)
- **Passenger Baggage Matching - Implementation and Operating Costs:**
\$2.0 billion (\$1.4 billion, discounted)
- **Passenger Baggage Matching - Delay Costs:**
\$467 million (\$323 million, discounted)
- **CAPS Program Implementation and Operating Costs:**
\$70 million (\$51 million, discounted)

The FAA expects that the total cost of compliance of \$2.8 billion may represent a potential maximum cost estimate. Estimating the economic cost that this proposed rule would impose on airlines and passengers was a difficult undertaking as suggested by the wide range of estimates that different airlines provided? As mentioned above, in addition to SABRE, COE assisted in the

¹⁸ Individual air carrier projections for the per passenger enplanement cost of domestic

assessment of costs for this proposed rule. Because implementation of domestic baggage matching based on a passenger screening process such as CAPS was not the subject of the aforementioned live tests, COE believes that substantial economies may be achieved by airlines beyond the experience of the live test and "a priori" estimates supplied by individual airlines. COE projected that the proposed rule would cost between \$500 million (based on 7 cents per passenger enplanement) and \$2.5 billion (based on 36 cents per passenger enplanement) over the next decade.¹⁹ In addition, according to COE from previous discussions, as part of a follow-up to the live test conducted for passenger baggage matching, air carriers stated that the costs they provided were overstated by at least 33%. This assessment is based on the fact that air carriers now have a much better idea how they would implement 100% positive passenger baggage matching if they were required to do so by regulation. Based on this information, coupled with the fact that there is some uncertainty as the result of the interpolation technique used by SABRE and COE to estimate costs, the FAA solicits comments from the aviation community as to the accuracy of this assessment of costs.

B. Analysis of Security Benefits

The primary benefit of the proposed rule would be significantly increased protection to U.S. citizens and others citizens traveling on U.S. domestic air carrier flights from acts of terrorism. Specifically, the proposed rule is aimed at deterring terrorism by preventing explosives from being placed on board commercial flights in checked baggage.

Terrorism can occur within the United States. Members of foreign terrorists groups, representatives from state sponsors of

bag match (the largest component of estimated costs) varied by factors of eight.

¹⁹Given the differences in methodologies between SABRE's methodology that the FAA used for this analysis, which is based on departures, and COE's methodology, which is based on enplanements, it is not unexpected that the two cost estimates do not agree. However, the closeness of these two cost estimates (the FAA's \$2.8 billion versus COE's high cost of \$2.5 billion) lends credence to the idea that the FAA's cost estimate is the worst-case scenario.

terrorism, and radical fundamentalist elements from many nations are present in the United States. In addition, Americans are joining terrorist groups. The activities of some these individuals and groups go beyond fund-raising to recruiting other persons (both foreign and U.S.) for activities that include training with weapons and making bombs. These extremists operate in small groups and can act without guidance or support from state sponsors. This makes it difficult to identify them or to anticipate and counter their activities. The following discussion outlines some of the concrete evidence of the increasing terrorist threat within the U.S. and to domestic aviation.

Investigation into the February 1993 attack on the World Trade Center (WTC) uncovered a foreign terrorist threat in the U.S. that is more serious than previously known. The WTC investigation disclosed that Ramzi Yousef arrived in the United States in September 1992 and presented himself to immigration officials as an Iraqi dissident seeking asylum. Yousef and a group of Islamic radicals in the United States then spent the next five months planning the bombing of the World Trade Center building and other acts of terrorism in the United States. Yousef returned to Pakistan on the evening of February 26, 1993, the same day that the World Trade Center bombing took place. Yousef traveled to the Philippines in early 1994, and by August of the same year had conceived a plan to bomb as many as twelve U.S. airliners flying between East Asian cities and the United States.

Yousef and co-conspirators Abdul Murad and Wali Khan tested the type of explosive devices to be used in the aircraft bombings and demonstrated the group's ability to assemble such a device in a public place, in the December 1994 bombing of a Manila theater. Later the same month, the capability to get an explosive device past airport screening procedures and detonate it aboard an aircraft also was successfully tested when a bomb was placed by

Yousef aboard the first leg of Philippine Airlines Flight 424 from Manila to Tokyo. The device detonated during the second leg of the flight, after Yousef had deplaned at an intermediate stop in the Philippine city of Cebu.

Preparations for executing the plan were progressing rapidly. However, the airliner-bombing plot was discovered in January 1995 only by chance after a fire led Philippine police to the Manila apartment where the explosive devices were being assembled. Homemade explosives, batteries, timers, electronic components, and a notebook full of instructions for building bombs were discovered. Subsequent investigation of computer files taken from the apartment revealed the plan in which five terrorists were to have placed explosive devices aboard United, Northwest, and Delta airline flights. In each case, a similar technique was to be used. A terrorist would fly the first leg of a flight out of a city in East Asia, planting the device aboard the aircraft and then getting off at an intermediate stop. The explosive device would then destroy the aircraft, continuing on a subsequent leg of the flight to the United States. It is likely that thousands of passengers would have been killed if the plot had been successfully carried out.

Yousef, Murad and Khan were arrested and convicted in the bombing of Philippine Airlines Flight 424 and in the conspiracy to bomb U.S. airliners. Yousef was sentenced to life imprisonment for his role in the Manila plot, while the two other co-conspirators have been convicted. Yousef also was convicted and sentenced to 240 years for the World Trade Center bombing. However, there are continuing concerns about the possibility that other conspirators remain at large. The airline-bombing plot, as described in the files of Yousef's laptop computer, would have had five participants. This suggests that, while Yousef, Murad and Khan are in custody, there may be others at large with the knowledge and skills necessary to carry out a similar plot against civil aviation.

The fact that Ramzi Yousef was responsible for both the World Trade Center bombing and the plot to bomb as many as twelve U.S. air carrier aircraft shows that: (1) foreign terrorists are able to operate in the U.S. and (2) foreign terrorists are capable of building and artfully concealing improvised explosive devices that pose a serious challenge to aviation security. This, in turn, suggests that foreign terrorists conducting future attacks in the U.S. may choose civil aviation as a target. Civil aviation's prominence as a prospective target is clearly illustrated by the circumstances of the 1995 Yousef conspiracy. The bombing of a federal office building in Oklahoma City shows the potential for terrorism from domestic groups. While the specific motivation that led to the Oklahoma City bombing would not translate into a threat to civil aviation, the fact that domestic elements have shown a willingness to carry out attacks resulting in indiscriminate destruction is worrisome. At a minimum, the possibility that a future plot hatched by domestic elements could include civil aircraft among possible targets must be taken into consideration. Thus, an increasing threat to civil aviation exists and needs to be prevented and/or countered from both foreign sources and potential domestic ones.

That both the international and domestic threats have increased is undeniable. While it is extremely difficult to quantify this increase in threat, the overall threat can be roughly estimated by recognizing the following:

- U.S. aircraft and American passengers are representatives of the United States, and therefore are targets;
- Up to 12 airplanes could have been destroyed in the actual plot described above, and thousands of passengers killed;²⁰
- These plots came close to being carried out; it was only through a fortunate discovery and then extra tight

²⁰ While the proposed rule would not have prevented the plot described above, this plot is representative of the type and seriousness of the threat that this proposed rule is trying to prevent.

security after the discovery of the plot that these incidents were thwarted;

- It is just as easy for international terrorists to operate within the United States as domestic terrorists, as evidenced by the World Trade Center bombing; therefore,
- Based on these facts, the increased threat to domestic aviation could be seen as equivalent to some portion of 12 Class I Explosions on U.S. airplanes. (The FAA defines Class I Explosions as incidents that involve the loss of an entire aircraft and incur a large number of fatalities.)

In 1996, both Congress and the White House Commission on Aviation Safety and Security recommended further specific actions to increase civil aviation security. The Commission stated that it believes that the threat against civil aviation is changing and growing, and recommended that the federal government commit greater resources to improving aviation security. President Clinton, in July 1996, declared that the threat of both foreign and domestic terrorism to aviation is a national threat. The U.S. Congress recognized this growing threat in the Federal Aviation Reauthorization Act of 1996 by: (1) authorizing money for the purchase of specific anti-terrorist equipment and the hiring of extra civil aviation security personnel; and (2) requiring the FAA to promulgate additional security-related regulations.

In the absence of increased protection for the U.S. domestic passenger air transportation system, it is conceivable that the system would be targeted for future acts of terrorism. If even one such act were successful, the traveling public would demand immediate increased security. Providing immediate protection on an ad hoc emergency basis would result in major inconveniences, costs, and delays to air travelers that may substantially exceed those imposed by the planned and measured steps contained in this proposal.

Based on the above statement, and after evaluating feasible alternative measures, the FAA concludes that this proposed rule sets forth the best method to provide increased security at the present time. Notwithstanding the above, it is helpful to consider, to the limited extent possible, the benefits of this proposal in reducing the costs associated with terrorist acts to the threat level and other factors. The following analysis describes alternative assumptions regarding the number of terrorist acts prevented and potential market disruptions averted that result in the proposed rule benefits at least equal to the proposed rule costs. This is intended to allow the reader to judge the likelihood of benefits of the proposed rule equaling or exceeding its cost.

The cost of a catastrophic terrorist act can be estimated in terms of lives lost, property damage, decreased public utilization of air transportation, etc. Terrorist acts can result in the complete destruction of an aircraft with the loss of all on board. The FAA considers a Boeing 737 as representative of a typical airplane flown domestically. The fair market value of a Boeing 737 is \$16.5 million, and the typical 737 airplane has 113 seats.²¹ It flies with an average load factor of 64.7%, which translates into 73 passengers per flight; the airplane would also have two pilots and three flight attendants.^{22 23}

A terrorist catastrophe could also result in fatalities on the ground. There were 11 such fatalities in the Pan Am 103 explosion and 15 in a collision of an AeroMexico airplane with a

²¹ See Federal Aviation Administration, Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs (Economic Values), FAA-APO-98-8, June 1998.

²² Blank Footnote.

²³ FAA regulations require one flight attendant for every 50 seats. As the typical 737 has 132 seats, this translates into 3 flight attendants.

Piper PA-28 airplane over Cerritos, California in 1986.²⁵ However, looking at the number of accidents including aircraft covered by this proposed rule and the number of fatalities on the ground over the last ten years, the average fatality was less than 0.5 persons per accident. Therefore, the FAA will not assume any ground fatalities in this analysis.

In order to provide a benchmark comparison of the expected safety benefits of rulemaking actions with estimated costs in dollars, a minimum of \$2.7 million is used as the value of avoiding an aviation fatality (based on the willingness to pay approach for avoiding a fatality). Applying this value, the total fatality loss of a single Boeing 737 is represented by a cost \$210.6 million (78 x \$2.7 million).

Quantified undiscounted estimated costs of a single domestic terrorist act on civil aviation are summarized on Table 7.

	Number	Value	Total Cost
Fatalities ²⁶	78	\$2,700,000	\$210,600,000
Aircraft ²⁷	1	\$16,500,000	\$16,500,000
Property	1	\$12,508,028	\$12,508,028
Investigation ²⁸	1	\$28,640,637	\$28,640,637
Legal Fees ²⁹		\$3,569,383	\$3,569,383
Total			\$271,818,048
Total, discounted			\$190,908,689

Source: U.S. DOT, FAA, APO-310, March 1999.

Certainly the primary concern of the FAA is preventing loss of life, but there are other considerations as well. Another large

²⁵ This took place on August 31, 1986. The **AeroMexico** airplane was a DC-9, and all 64 on board were killed. Eighteen others were killed, including 3 in the Piper and 15 on the ground.

²⁶ Footnote Blank.

²⁷ Footnote Blank.

²⁸ This assessment is based on the investigation to date on Pan Am 103 bombing over Lockerbie, Scotland, in December 1988.

²⁹ Both the civil and criminal trials stemming from the Pan Am 103 tragedy have not yet been completed. Thus, it is impossible to estimate all the legal costs from these trials. However, the government spent between **\$3,569,383** (1998 dollars) on the civil trial as of August 1992, so this figure will be used as a lower limit for such tragedies.

economic impact is related to decreased airline travel following a terrorist event. A study performed for the FAA³⁰ indicated that it takes about 9 to 10 months for passenger traffic to return to the pre-incident level after a single event.³¹ Such a reduction occurred immediately following the destruction of Pan Am Flight 103 over Lockerbie, Scotland in December 1988, and can be seen in Tables 8A, and 8B, which are based on Pan Am's Trans-Atlantic enplanements:

TABLE 8A - PAN AM - MONTHLY ENPLANEMENTS FOR TRANS-ATLANTIC ROUTES						
	1985	1986	1987	1988	1989	1990
Jan	364,182	394,938	429,627	497,908	405,876	494,168
Feb	314,873	334,406	360,140	434,335	324,156	407,373
Mar	296,733	422,164	473,734	573,078	449,154	531,867
Apr	337,936	401,276	525,844	599,707	513,900	587,046
May	502,857	438,585	596,839	656,265	574,414	624,165
June	569,492	481,808	663,563	718,781	660,945	734,271
July	572,062	503,910	715,506	730,224	671,131	734,881
Aug	568,605	573,630	746,261	752,226	677,074	663,405
Sept	567,147	538,396	659,922	687,924	622,350	566,867
Oct	498,354	493,161	645,901	668,763	581,780	261,280
Nov	395,361	429,760	507,773	494,815	499,130	287,110
Dec	399,508	439,083	516,347	488,812	507,562	226,510
Total	5,387,110	5,451,117	6,841,457	7,302,838	6,487,472	

Source: U.S. DOT, FAA, APO-310, April 1999.

TABLE 8B - COMPARISON OF SELECTED YEARS FROM TABLE 8A			
	Comparison of 1988 to 1987	Comparison of 1989 to 1988	Comparison of 1990 to 1988
Jan	115.9%	81.5%	99.2%
Feb	120.6%	74.6%	93.8%
Mar	121.0%	78.4%	92.8%
Apr	114.0%	85.7%	97.9%
May	110.0%	87.5%	95.1%
June	108.3%	92.0%	102.2%
July	102.1%	91.9%	100.6%
Aug	100.8%	90.0%	
Sept	104.2%	90.5%	
Oct	103.5%	87.0%	
Nov	97.4%	100.9%	
Dec	94.7%	103.8%	

Source: U.S. DOT, FAA, APO-310, April 1999.

As the tables show, in general, 1988 enplanements were above 1987's. There was a dramatic fall-off in enplanement in the

³⁰ Pailen-Johnson Associates, Inc., "An Econometric Model of the Impact of Terrorism on U.S. Air Carrier North Atlantic Operations", Contract No. DTFA01-86-Y-01055, Prepared for: Aircraft/Interactively & Safety Branch, FAA, Washington D.C., Sept. 1987.

³¹ No study has looked at the effect of more than one explosion or other criminal or terrorist incident, such as the plot masterminded by Ramzi Yousef to blow up twelve airplanes, happening within a short period of time. The amount of market loss (due to a disruption in passengers' confidence to fly) from these multiple acts (such as Class I

first 3 months of 1989 immediately following the Pan Am 103 tragedy, and it took until November 1989 for enplanements to approximate their 1987 and 1988 levels. By 1990, enplanements were at the level they were in 1988. Trans-Atlantic enplanements increased, from 1985 to 1988, at an annual rate of 10.7 percent.³² Projecting this rate to 1989 would have yielded 1989 enplanements of 8.1 million, or 1.6 million more than Pan Am actually experienced. This represents almost a 20 percent reduction in expected enplanements caused by the destruction of Pan Am 103 by terrorists.

The estimated effect of a successful terrorist act on the domestic market has not been studied. Although there are important differences between international and domestic travel (such as the availability of alternative destinations and means of travel), the FAA believes that the traffic loss associated with international terrorist acts is representative of the potential domestic disruption.

There is a social cost associated with travel disruptions and cancellations caused by terrorist events. The cost is composed of several elements. First is the loss associated with passengers opting not to fly -- the value of the flight to the passenger (consumer surplus) in the absence of increased security risk and the profit that would be earned by the airline (producer surplus). Even if a passenger opts to travel by air, the additional risk may reduce the associated consumer surplus. Second, passengers who cancel plane trips would not purchase other goods and services normally associated with the trip, such as meals, lodging, and car rental, which would also result in losses of related consumer and producer surplus. Finally, although spending on air travel would decrease, pleasure and business travelers may substitute spending on other goods and services (which produces some value) for the foregone air trips.

Explosions) could have been significant.

³² The only substantive pause in the increase in Pan Am enplanements occurred from May through October in 1986, due to fears brought on by the bombing of TWA 840 over the Aegean Sea, in April 1986.

Economic theory suggests that the sum of the several societal value impacts associated with canceled flights would be a net loss. As a corollary, prevention of market disruption (preservation of consumer and producer welfare) through increased security created by the proposed rule is a benefit.

The FAA is not able to estimate the actual net societal cost of travel disruptions and the corollary benefit gained by preventing the disruptions. However, there is a basis for judging the likelihood of attaining benefits by averting market disruption sufficient, in combination with safety benefits, to justify the proposed rule. The discounted cost of this proposed rule is \$2.0 billion, while the discounted benefits for each Class I Explosion averted (from Table 7) comes to \$190 million. Hence, if only 1 Class I Explosion is averted, the present value of losses due to market disruption must at least equal \$1.8 billion (\$2.0 billion less \$190 million -- one Class I Explosion). If two Class I Explosions are averted, the value of the market losses must at least equal \$1.6 billion (\$2.0 billion less 2 times \$190 million).

The value of market loss averted is the product of the number of foregone trips and the average market loss per trip (combination of all impacts on consumer and producer surplus). If one uses an average ticket price of \$160 as a surrogate of the combined loss, preservation of 11.2 million lost trips would be suffered, in combination with the safety benefits of 1 averted Class I Explosion, for the benefits of proposed rule to equal costs. This represents 3 percent of annual domestic trips (the traffic loss caused by Pan Am 103 on trans-Atlantic routes was 20 percent) .³³ Calculations can be made on the number of averted lost trips needed if the net value loss was only 75 percent of the ticket price or exceeded the ticket price by 25 percent. If total market disruption cost was \$130 or \$200 per trip, retention

³³ The average price of a ticket and the number of domestic enplanements were estimated based on information contained in the report entitled FAA Aerospace Forecasts: Fiscal Years 1999-2010, Tables 7 and 12, FAA-APO-99-1, March 1999. Total domestic trips in 1998 was 396 million and was obtained by assuming 1.4 enplanements per one-way trip.

of 13.8 and 9.0 million lost trips, respectively, would need to occur for the proposed rule benefits to equal the proposed rule costs, assuming 1 Class I Explosion would be prevented. The FAA requests comments on the potential size of market loss per trip and number of lost trips averted.

Table 8C presents combinations of the total number of trips not taken as a result of one to four Class I Explosions at alternative values per lost trip that would be sufficient to generate monetized benefits in excess of the estimated proposed rule costs.

Table 8C - Minimum Number of Trips Not Taken as a Result of One to Four Class I Explosions Averted (for Benefits to Equal Costs)			
Number of Class I Explosions Averted	Assumed Net Market Loss Per Trip (in 1998 Dollars)		
	\$130	\$160	\$200
1	13.8 million	11.2 million	9.0 million
2	12.2 million	10.0 million	8.0 million
3	10.9 million	8.8 million	7.1 million
4	9.4 million	7.6 million	6.1 million

Source: FAA, APO-310, March 1999.

The FAA stresses that the range of trips not taken in Table 8C is shown for illustrative purposes and does not represent an explicit endorsement that these would be the exact number of trips that would actually be lost. As noted above, it is important to compare, to the limited extent possible, the cost of this proposal to some estimate of the benefit of increased security it would provide as that level of security relates to the threat level.

Based on the White House Commission recommendation, recent Congressional mandates and the known reaction of Americans to any air carrier disaster, the FAA determines that pro-active regulation is warranted to prevent terrorist acts (such as Class I Explosions) before they occur.

V. ANALYSIS OF ALTERNATIVES TO THE NPRM

The proposed rule is a "significant regulatory action" as defined by Executive Order 12866 (Regulatory Planning **and** Review) because it would impose costs exceeding \$100 million annually. The E.O. requires that agencies proposing significant rules provide an assessment of feasible alternatives to their respective rulemaking actions. In addition, the E.O. requires that an explanation of why the proposed rule, which is significant, is preferable to the identified potential alternatives. This assessment of alternatives is discussed as follows:

The FAA identified and considered six alternatives, with Alternative Number Five being chosen as the proposed rule.

Alternative Number One - The Status Quo

This alternative would maintain the status quo. Currently, the, FAA mandates manual passenger profiling and passenger baggage matching based on this profiling only in situations where the FAA has determined that a heightened security threat exists. Manual passenger profiling is performed on a contingency basis when the FAA issues specific Security Directives (SD's). SD's are temporary conditions which are considered part of the status quo. While costs are incurred to implement manual passenger profiling whenever a threat exists, they are not considered permanent costs because they are associated with procedures required by emergency, temporary security rules.

Although this alternative would be the least costly course of action in terms of air carrier costs and passenger delays, it provides no increased security protection. The FAA believes that the threat to civil aviation within the United States has increased and further rulemaking is necessary as discussed in the benefits section of this analysis. This alternative is considered to be unacceptable because it would allow domestic

airline passengers to remain exposed to a significant terrorist risk.

Alternative Number Two - Phasing-in the mandatory use of Explosives Detection System (EDS) (without requirement for CAPS)

Alternative 2 would phase in the mandatory use of EDS over a 10-year period of time, at a rate of 10% per year. By the end of the first year, approximately 10% of all passengers and baggage would be covered, by the end of the second year, 20% of all passengers and baggage would be covered, etc. Under Alternative 2, air carriers without EDS would be required to continue performing their status quo security procedures until they are provided with EDS equipment.

Over 10 years, total EDS costs sum to \$2.1 billion (\$1.4 billion, discounted). Of these costs, initial acquisition, installation, and training costs sum to \$815.8 million (\$571.8 million, discounted), while recurring costs sum to \$1.3 billion (\$808.2 million, discounted). Detailed information on how these numbers were derived can be found in Appendix A to this RIA.

In terms of benefits, explosive detection system equipment offers the highest level of security against explosives being stored in the cargo compartments of airplanes. EDS is able to examine all baggage that passes through on a conveyor belt. Baggage that clears on the first leg of travel does not require re-examination with subsequent transfers to other flights or other air carriers. Therefore, air carrier personnel would not be required to monitor and process each piece of baggage during each section of the passenger's flight.

Alternative 2 would, over the initial 10 year period, probably provide, on average, less quantifiable benefits than the proposal. In the first year, only 10% of the passengers and baggage would be covered, so only 10% of the potential increase in overall security (and hence, benefits) associated with EDS would be attained. In the second year, as 20% of the passengers and baggage would be covered (resulting from 10% in the first

year and then 10% the second year), 20% of the increase in benefits associated with EDS would be attained. Only during the tenth year would there be full augmentation of EDS, and attainment of the full increase in security (and hence, benefits) associated with EDS. Averaging these increases over 10 years yields only 55% of the full EDS benefit.³⁴ This contrasts with the benefits of this proposal where each year there would be the full attainment of the proposal's benefits.³⁵

The FAA believes that where it is applied, EDS would be more effective than the proposal, so total benefits from 100% EDS would be higher than the proposal.³⁶ The incremental increase over the proposal's benefits cannot be described in this document because the actual quantification of this level of security, based on all the variables involved, is classified. However, the benefits of complete EDS implementation would need to be roughly twice that of the proposal for Alternative 2 to be superior to it.

This goal of using EDS for 100% of its flights cannot be implemented immediately due, among other reasons, to the lack of production capability. This lack of full EDS coverage would lead to a window of vulnerability as only some flights would be covered, so this would not counter the increased threat.

Under Alternative 2, the step-by-step, annual improvements in the level of security would lead to a bifurcated security program. The public would realize that some flights would be safer than others. Terrorists might be able to determine which flights are using EDS and act accordingly, potentially resulting in an airplane explosion.

³⁴ This is derived by summing the proportion of total benefits attained for each year and dividing by 10.

³⁵ The FAA calculated the benefits to this proposal by first quantifying the costs of Class I Explosions, and then assuming that they would have an equally likely chance of being prevented in any given year.

³⁶ Source: The Office of Civil Aviation Security (ACS), FAA, February 1998.

Alternative Number Three - Requiring 100% passenger baggage matching of each carrier while phasing-in mandatory use of EDS

This Alternative would supplement the EDS required in Alternative 2 by requiring 100% passenger baggage matching for those flights whose baggage is not processed by EDS until EDS becomes available. Hence, the first year would have 10% of the passengers and baggage covered by EDS and 90% by passenger baggage matching, the second year would have 20% covered by EDS, 80% by passenger baggage matching, etc., until the tenth year which would have 100% of the passengers and baggage covered by EDS.

Alternative 3 would combine the costs of EDS (as shown in Alternative 2) to the costs of those flights on which full baggage matching is used. Over 10 years, total EDS costs sum to \$2.1 billion (\$1.4 billion, discounted). The costs of baggage matching portion of Alternative 3 would be \$4.6 billion (\$3.7 billion, discounted), with the passenger baggage matching start up and operation costs at \$3.8 billion (\$3.0 billion, discounted), and delay costs at \$819.4 million (\$640.4 million, discounted); there would be no CAPS costs. Hence, total 10 year costs for Alternative 3 would be \$6.7 billion (\$5.0 billion, discounted).

Alternative 3 would yield the highest level of security of any of the Alternatives considered.³⁷ The actual quantification of this level of security, based on all the variables involved, is classified.

Alternative 3 could produce major operational problems. Large number of domestic flights are scheduled in hub and spoke systems where at present passengers can check in quite close to the departure. Under this Alternative, a 100% passenger baggage matching schema would probably result in substantial flight delays due to the unloading of unmatched baggage on one flight. These initial delays would impact on and delay some connecting

flights. The result could be a daily ripple effect which gets worse as the day wears on; each day's effect would have the potential to affect the following day's operations as airplanes and flight crew members might not be positioned at the proper airport at the end of each day. The additional security requirements for each passenger on each flight could also overload the system. The space and time required for screening all checked baggage by EDS could cause severe congestion at existing airport facilities. These operational burdens on air carriers would result in both fewer flights and passengers paying more for tickets.

The FAA has very high confidence in the effectiveness of the proposed rule in terms of countering the current threat. In other words, the FAA believes that most of the current threat could be successfully countered through the use of CAPS and passenger baggage matching for selected passengers. Alternative 3 would be more effective in countering the threat, but the FAA does not believe that the incremental increase in security provided by Alternative 3 is worth the additional cost of this Alternative -- about \$4 billion more than the proposed rule.

While it is difficult to quantify these different levels of effectiveness, one way of looking at this might be to say that the proposed rule could conceivably counter, for instance, 90% of the threat. Alternative 3 might counter 99% of the threat. Hence, if 90% of the threat could be countered for \$2.8 billion, but an additional 10% could be countered for an additional \$3.9 billion, it would not be cost beneficial to spend this additional amount of money for this increase. Increases in costs would more than double in order to gain perhaps 10% in extra security over the proposed rule.

³⁷ Source: The Office of Civil Aviation Security (ACS), FAA, February 1998.

Alternative Number Four - Passenger Baggage Matching on randomly selected passengers while phasing-in EDS

Like Alternatives 2 and 3, Alternative 4 would move towards a security system based on EDS screening. Random selection, rather than CAPS, would determine which passengers would be subject to passenger baggage matching.

The FAA believes, for analyzing this Alternative, that a 10% screening rate would be an effective random rate to provide deterrence to terrorists.³⁸ As in Alternatives Numbers 2 and 3, EDS would be phased in, so that, for the first year, 10% of the passengers and baggage would be subject to the full use of EDS and 90% to this reduced (10%) screening rate, for the second year, 20% would be subject to EDS, while 80% would be subject to this reduced (10%) screening rate, etc. The partial passenger baggage matching cost portion of this analysis was calculated based on the 5% passenger bag matching costs discussed above. The start up and operating costs under this Alternative would be the same as for the 5% passenger baggage matching scenario, while the system delay costs would be double that of the 5% scenario. Ten year costs for the partial passenger baggage matching portion of this scenario would be \$1.4 billion (net present value, \$1.1 billion), with the passenger baggage matching start up and operating costs at \$1.0 billion (\$816.9 million, discounted), and system delay costs at \$373.8 million (\$292.1 million, discounted); there would be no need for, and hence, no costs for CAPS. With total EDS costs at \$2.1 billion (\$1.4 billion, discounted), total 10 year costs for Alternative 4 sum to \$3.5 billion (\$2.5 billion, discounted).

As above, the FAA believes that where it is applied, EDS would be more effective than the proposal, so total benefits from 100% EDS

³⁸ This is 10% random rate is different than the projected 5% selectee rate from CAPS. The 5% selectee rate would be based on specific variables that meet the profiles that the FAA would want to monitor more closely through baggage matching. This not a pre-selected rate, but rather an assumption based on data and testing to date. On the other hand, this 10% rate would be a random rate where everyone would have an equally like chance of being selected; the FAA believes that this rate would provide a deterrent effect.

would be higher than the proposal; the incremental increase over the proposal's benefits can not be quantified in this document. However, even with the greater effectiveness of EDS, the major problem with this Alternative is the window of vulnerability that would still exist. In the first year, 90% of flights would depend on a randomly selected passenger baggage matching schema that would be much less effective than CAPS. As discussed above, the FAA assumes that CAPS would be very effective in countering the threat. Selecting 10% of the passengers at random would, on these flights, yield benefits only 10% of those that would be derived from the proposal. Until the tenth year, where full EDS implementation would be expected, there would be a major shortfall in benefits.

This goal of using EDS for 100% of its flights cannot be implemented immediately due, among other reasons, to the lack of production capability. Even when partial EDS is combined with random baggage matching, only some flights would be covered, so many flights would remain vulnerable. Given that this Alternative is more expensive than the proposal, yet does not close the window of vulnerability, the FAA rejects this Alternative.

Alternative Number Five - Baggage Matching on
Passengers Selected by CAPS With Use of EDS, Where Available

This alternative represents is the proposed rule, which was costed out in the discussion above.

Alternative Number Six - Performing Passenger Baggage Matching on
a limited number of CAPS selectees

Alternative 6 would be a modification of the proposed rule in that the air carriers would use CAPS to form the pool of selectees, but would only subject a random number of these selectees to passenger bag matching.

Similar to the proposal, the per departures costs would be based on the 5% passenger bag matching costs. For analysis purposes

for Alternative 4, the FAA is assuming that 50% of the pool of selectees would be subject to passenger baggage matching. This yields ten year costs of \$1.6 billion (\$1.1 billion, discounted), with the passenger baggage matching costs at \$1.2 billion (\$881.4 million, discounted), delay costs at \$252.7 million (\$174.784.1 million, discounted), and CAPS costs at \$69.2 million (\$50.9 million, discounted).

This proposal bases benefits on performing passenger baggage matching on 100% of selectees. Reducing this pool would reduce the protection based on CAPS and passenger bag matching and would increase the likelihood of someone who was a selectee but whose was exempted under this Alternative being able to cause an explosion on an airplane. The FAA believes that this reduction in security is nearly linear; there would be some (non-quantifiable) reduction in the threat based on the deterrence aspect of this Alternative.³⁹ Hence a 50% reduction in the pool would bring about a nearly 50% reduction in benefits from current levels.

The major problem with this scenario is that it would offer a lower level of security and would amount to reducing the value of the CAPS criteria. As discussed above, the FAA assumes that CAPS would be very effective in countering the threat. Selecting 50% of the passengers at random would yield benefits equal to roughly half of those that would be derived from the proposal. This would open up and continue to be a window of vulnerability on every flight, as only some passengers would be covered, so this would not eradicate the increased threat. It does not enhance security to establish a computerized automated profiling system to select passengers based on a set of criteria and then ignore some of these selectees, hoping that the deterrence value of the possibility of being selected would equal or outweigh the costs and benefits of performing baggage matching. This Alternative

³⁹ Since all CAPS selectees would have an equally likely likelihood of being subjected to baggage matching, this probability would have a deterrent effect on any potential terrorist.

could thus allow for the possibility of someone who was a selectee but whose baggage was not subject to passenger baggage matching being able to cause an explosion on an airplane.

Tables 9A and 9B sum up those costs regarding the aforementioned alternatives, while Table 9C summarizes the benefits discussions:

TABLE 9A - COST OF ALTERNATIVES (Millions of 1998 Dollars)				
	ALT. 2	ALT. 3	ALT. 4	ALT. 6
PASSENGER BAGGAGE MATCHING				
Passenger Baggage Matching - Start Up and Operating Costs	\$0.0	\$3,802.4	\$1,009.2	\$1,233.9
Passenger Baggage Matching - Delay Costs	\$0.0	\$819.4	\$373.8	\$252.7
CAPS	\$0.0	\$0.0	\$0.0	\$69.2
Total Passenger Baggage Matching	\$0.0	\$4,621.8	\$1,383.0	\$1,555.8
EDS	\$2,127.0	\$2,127.0	\$2,127.0	\$0.0
TOTAL COSTS	\$2,127.0	\$6,748.8	\$3,510.0	\$1,555.8

TABLE 9B - DISCOUNTED COST OF ALTERNATIVES (Millions of 1998 Dollars)				
	ALT. 2	ALT. 3	ALT. 4	ALT. 6
PASSENGER BAGGAGE MATCH				
Passenger Baggage Matching - Start Up and Operating Costs	\$0.0	\$3,014.3	\$816.9	\$881.4
Passenger Baggage Matching - Delay Costs	\$0.0	\$640.4	\$292.1	\$174.7
CAPS	\$0.0	\$0.0	\$0.0	\$50.9
Total Passenger Baggage Matching	\$0.0	\$3,654.6	\$1,109.0	\$1,107.0
EDS	\$1,380.0	\$1,380.0	\$1,380.0	\$0.0
TOTAL COSTS	\$1,380.0	\$5,034.6	\$2,489.0	\$1,107.0

SUMMARY OF BENEFITS DISCUSSION			
ALT. 2	ALT. 3	ALT. 4	ALT. 6
Benefits would need to be nearly twice that of Proposal	Alternative would overload the system for minor increase in overall benefits	Window of vulnerability would still remain on those flights using a random selection process for baggage matching	Window of vulnerability would exist on all flights

Source: U.S. DOT, FAA, APO-310, April 1999.

VI. INITIAL REGULATORY FLEXIBILITY DETERMINATION AND ANALYSIS

A. Initial Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities (small business and small not-for-profit government jurisdictions) are not unnecessarily and disproportionately burdened by Federal regulations. The RFA, which was amended March 1996, requires regulatory agencies to review rules to determine if they have "a significant economic impact on a substantial number of small entities." The Small Business Administration defines small entities to be those airlines with 1,500 or fewer employees for the air transportation industry. For this proposed rule, the small entity group is considered to be scheduled air carrier operators utilizing aircraft with 61 or more passenger seats subject to FAR part 108 and having 1,500 or fewer employees.⁴⁰ The FAA has identified a total of 12 operators that meet this definition, as shown in Table 10A.

The FAA has estimated the annualized cost impact on each of those 12 small entities potentially impacted by the proposed rule. The proposed rule is expected to impose an estimated total cost of \$122 million on the 12 small entities over the next 10 years. For purposes of this rulemaking, one-percent of the annual median revenue estimated for 1998 (\$823,000, in 1998 dollars) of the 12 small entities impacted by this proposed rule, is considered economically significant. As Table 10A shows, 5 of the 12 small entities subject to part 108 would incur a significant economic impact in the form of annualized costs in excess of \$823,000 as the result of the proposed rule. The FAA concludes that the proposed rule would have a significant economic impact on a substantial number of small entities, and has prepared an initial regulatory flexibility analysis shown below.

⁴⁰ The Standard Industrial Classification Code for these small entities is 4512, which represents "Scheduled Air Passenger Carriers."

TABLE 10A
SUMMARY OF INITIAL RFA DETERMINATION OF ECONOMIC IMPACT
(1998 Dollars, Discounted, 10 Years, 7%)

Air Carrier	Number of Employees	Annual Average Departures By Small Air Carrier (2000-2009)	1% of 1998 Median Impacted Small Business Annual Revenues ¹	Annualized Cost of Compliance ²	Significant Economic Impact?
NATIONALS:					
1 KIWI INTERNATIONAL	485	8,182	\$823,000	\$266,240	No
2 AIR WISCONSIN AIRLINES CORP - UNITED	933	70,297	\$823,000	\$581,128	No
3 MIDWAY AIRLINES CORP	1,032	40,673	\$823,000	\$1,335,429	Yes
LARGE REGIONALS:					
4 AIR TRAN AIRLINES	550	89,549	\$823,000	\$3,510,160	Yes
5 MESABA AIRLINES	1,234	86,969	\$823,000	\$3,409,001	Yes
6 FRONTIER AIRLINES	895	26,408	\$823,000	\$859,349	Yes
7 SPIRIT AIRLINES INC	767	17,869	\$823,000	\$700,439	No
8 UFS INC [UNITED EXPRESS]	400	25,052	\$823,000	\$207,096	No
9 REEVE ALEUTIAN AIRWAYS INC	340	4,036	\$823,000	\$131,331	No
MEDIUM REGIONALS:					
10 PROAIR AIRLINES	110	5,876	\$823,000	\$192,927	No
11 EASTWIND AIRLINES	73	6,262	\$823,000	\$205,613	No
12 VANGUARD AIRLINES	550	22,579	\$823,000	\$734,746	No

¹ Updated using the GDP Implicit Price Deflator for 1998. The rate of change from 1997 to 1998 is about 1.01 percent (rounded).

² Annualized using a capital recovery factor of 0.14785, over 10 years, using a 7 percent rate of interest.

Source: U.S. DOT, FAA, APO-310, April 1999.

B. Initial Regulatory Flexibility Analysis

Under Section 603(b) of the RFA (as amended), each initial regulatory flexibility analysis is required to address these points: (1) reasons why the FAA is considering the proposed rule, (2) the objectives and legal basis for the proposed rule, (3) the kind and number of small entities to which the proposed rule would apply, (4) the projected reporting, recordkeeping, and other compliance requirements of the proposed rule, and (5) all Federal rules that may duplicate, overlap, or conflict with the Proposed rule.

Reasons why the FAA is considering the proposed rule

Over the past several years, the FAA has recognized that the threat against civil aviation is changing and growing (see either the background section of this RIA or the background section of the preamble for a more detailed discussion of this threat). Terrorist and criminal activities within the United States have forced the FAA and other federal agencies to reevaluate the domestic threat against civil aviation. The proposed rule is intended to counter this increased threat to U.S civil aviation security.

The objectives and legal basis for the proposed rule

The objective of the proposed rule is to increase protection to Americans and others traveling on U.S. domestic air carrier flights from terrorist acts. Specifically, the proposed rule is aimed at preventing explosives from being placed on board commercial flights in checked baggage.

The legal basis for the proposed rule is found in 49 U.S.C. 44901 et seq. Among other matters the FAA must consider as a matter of policy are maintaining and enhancing safety and security in air commerce as its highest priorities (49 U.S.C. 40101(d)).

The kind and number of small entities to which the proposed rule would apply

The proposed rule applies to 32 scheduled airlines subject to FAR part 108, of which 12 are small scheduled operators (with 1,500 or fewer employees) that use aircraft with more than 60 passenger seats (see table 10B below).⁴¹ A brief financial profile of these small entities is provided in Tables 11A (net income) and 11B (assets, liabilities, and financial strength ratios) by category: nationals, large regionals, and medium regionals.

Table 10B - Number of Air Carriers Impacted by Proposed Rule

Category	Annual Revenues By Category	Total No. of Entities Impacted	No. of Small Carriers Impacted
Majors	More than \$ 1.0b	9	0
Nationals	\$100.0m-\$ 1.0b	14	3
Large Regionals	\$ 20.0m-\$99.9m	6	6
Medium Regionals	\$ 0.0m-\$19.9m	<u>3</u>	<u>3</u>
Total		32	12

The projected reporting, recordkeeping, and other compliance requirements of the proposed rule

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted a copy of these proposed sections to the Office of Management and Budget (OMB) for its review.

Each of the 32 operators affected by this proposal would need to comply with an FAA approved security program plan based upon either CAPS, or 100 percent PPBM screening or checked baggage

⁴¹ In this RIA, the FAA estimated 32 air carriers that would be potentially impacted by the proposed rule for CAPS. This is the number of air carriers holding Department and FAA authority to operate airplanes having more than 60 seats that actually engaged in scheduled operations and filed Form 41 reports reflecting those operations as of April 1999. The FAA recognizes that this estimate does not include any air carriers that receives scheduled passenger authority since that time. Such air carriers not operating under such authority at the time could be impacted by this proposed rule. The FAA will re-evaluate the impact of this proposal on operating scheduled air carriers prior to publication of a final rule.

TABLE 11A
SUMMARY OF FINANCIAL PROFILE OF PART 108 SMALL ENTITIES: Net Income (Profits and Losses)

Air Carrier (Domestic Operations)		Total No. Small of Entities Impacted by NPRM, by Category	Domestic Operations: Net Income or (Loss) 1994, \$000	Domestic Operations: Net Income or (Loss) 1995, \$000	Domestic Operations: Net Income or (Loss) 1996, \$000	Domestic Operations: Net Income or (Loss) 1997, \$000	10-Year Annualized Cost of Compliance (1998, \$000)
		Column A	Column B	Column C	Column D	Column E	Column F
No. NATIONALS:		3					
1	AIR WISCONSIN AIRLINES CORP - UNITED		\$2,476	\$3,124	\$3,790	\$3,675	\$266
2	MIDWAY AIRLINES CORP		(\$21,657)	(\$ 1 6)	(\$4,496)	\$23,495	\$58.1
3	KIWI INTERNATIONAL		(\$18,054)	(\$771)	\$1,261	(\$20,600)	\$1,335
LARGE REGIONALS:		6					
4	AIR TRAN AIRLINES		\$20,772	\$67,883	(\$41,463)	(\$15,344)	\$3,510
5	FRONTIER AIRLINES		(\$5,076)	(\$8,208)	(\$8,080)	(\$18,945)	\$3,409
6	MESABA AIRLINES ²		Not Available	Not Available	Not Available	\$11,038	\$859
7	REEVE ALEUTIAN AIRWAYS INC		(\$1,967)	(\$1,698)	(\$1 ,930)	(\$2,376)	\$700
8	SPIRIT AIRLINES INC		\$1,762	\$2,684	(\$4,818)	(\$609)	\$207
9	UFS INC [UNITED EXPRESS]		\$1,347	\$1,840	\$1,593	\$514	\$13 ¹
MEDIUM REGIONALS:		3					
10	PROAIR AIRLINES ³		Not Available	Not Available	Not Available	Not Available	\$193
11	EASTWIND AIRLINES ⁴		Not Available	(\$2,711)	(\$5,051)	(\$6,557)	\$206
12	VANGUARD AIRLINES		(\$3,028)	(\$11,362)	(\$24,057)	(\$21,690)	\$735

¹ For period of September 30, 1996 to September 30, 1997. Net income shown for years 1994-1996 pertain to January through December of those respective years.

* Financial information was obtained from the Air Carrier Financial Quarterly for 1994 - 1996 (4th Quarter: December '94 to December '96) and 1997 (Third Quarter: September '96 to September '97), Bureau of Transportation Statistics, Office of Airline Information, U.S. Dept. of Transportation.

² This year's financial information is not available for the subject air carrier because it did not receive its effective operating authority (as a large pax air carrier) until April 1997.

³ This year's financial information is not available for the subject air carrier because it did not receive its effective operating authority (as a large pax air carrier) until June 1997

⁴ This year's financial information is not available for the subject air carrier because it did not receive its effective operating authority (as a large pax air carrier) until August 1997

Represents an air carrier recently added as a small entity.

SUMMARY OF FINANCIAL PROFILE OF PART 108 SMALL ENTITIES: Assets, Liabilities, and Financial Strength Ratios													
TABLE 11B													
No.	Air Carrier (Domestic Operations)	Current Assets	Current Liabilities	Total Quick Assets	Current Assets	Current Liabilities	Total Quick Assets	Current Assets	Current Liabilities	Total Quick Assets	Current Assets	Current Liabilities	Total Quick Assets
		1994, \$000	1994, \$000	1994, \$000	1995, \$000	1995, \$000	1995, \$000	1996, \$000	1996, \$000	1996, \$000	1997, \$000	1997, \$000	1997, \$000
1	AIR WISCONSIN AIRLINES	\$13,376	\$9,966	\$6,091	\$16,126	\$12,663	\$8,935	\$15,693	\$12,624	\$7,895	\$14,736	\$12,601	\$6,847
	Net Working Capital	\$3,410			\$3,463			\$3,069			\$2,135		
	Current Ratio		1.34			1.27			1.24			1.17	
	Quick Ratio			0.61			0.71			0.63			0.54
2	PROAIR AIRLINES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Net Working Capital	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Current Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Quick Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	KIWI INTERNATIONAL	\$22,219	\$37,359	\$19,287	\$30,411	\$57,474	\$16,886	\$28,528	\$61,054	\$13,926	\$13,186	\$24,705	\$10,708
	Net Working Capital	(\$15,140)			(\$27,063)			(\$32,526)			(\$11,519)		
	Current Ratio		0.59			0.53			0.47			0.53	
	Quick Ratio			0.52			0.29			0.23			0.43
4	MESABA AIRLINES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$83,131	\$41,150	\$74,045
	Net Working Capital	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$41,981		
	Current Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		2.02	
	Quick Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			1.80
5	FRONTIER AIRLINES	\$11,771	\$8,332	\$10,367	\$12,384	\$18,539	\$9,787	\$28,127	\$29,585	\$23,740	\$17,609	\$48,170	\$11,352
	Net Working Capital	\$3,439			(\$6,155)			(\$1,458)			(\$30,561)		
	Current Ratio		1.41			0.67			0.95			0.37	
	Quick Ratio			1.30			0.53			0.80			0.24
6	EASTWIND AIRLINES	N/A	N/A	N/A	\$2,255	\$3,148	\$1,878	\$2,119	\$6,809	\$515	\$4,287	\$7,412	\$544
	Net Working Capital	N/A	N/A	N/A	(\$893)			(\$4,690)			(\$3,125)		
	Current Ratio	N/A	N/A	N/A		0.72			0.31			0.58	
	Quick Ratio	N/A	N/A	N/A			0.60			0.08			0.07
7	REEVE ALEUTIAN AIRWAYS	\$6,351	\$5,076	\$3,032	\$5,369	\$4,586	\$2,743	\$4,920	\$6,618	\$2,638	\$6,078	\$9,653	\$3,538
	Net Working Capital	\$1,275			\$783			(\$1,698)			(\$3,575)		
	Current Ratio		1.25			1.17			0.74			0.63	
	Quick Ratio			0.60			0.60			0.40			0.37
8	SPIRIT AIRLINES INC	\$8,360	\$8,204	\$7,860	\$8,297	\$11,643	\$4,463	\$9,223	\$17,595	\$5,539	\$13,601	\$21,411	\$10,249
	Net Working Capital	\$156			(\$3,346)			(\$8,372)			(\$7,810)		
	Current Ratio		1.02			0.71			0.52			0.64	
	Quick Ratio			0.96			0.38			0.31			0.48
9	AIR TRAN AIRLINES	\$98,182	\$37,597	\$93,213	\$149,788	\$86,285	\$140,426	\$251,041	\$70,698	\$194,306	\$99,088	\$14,244	\$88,047
	Net Working Capital	\$60,585			\$63,503			\$180,343			\$84,844		
	Current Ratio		2.61			1.74			3.55			6.96	
	Quick Ratio			2.48			1.52			2.35			6.78
10	UPS INC [UNITED EXPRESS]	\$7,164	\$6,620	\$4,577	\$8,977	\$8,803	\$5,602	\$9,671	\$8,941	\$6,262	\$11,279	\$8,714	\$7,884
	Net Working Capital	\$544			\$174			\$730			\$2,565		
	Current Ratio		1.08			1.02			1.08			1.29	
	Quick Ratio			0.69			0.64			0.70			0.90
11	MIDWAY AIRLINES CORP	\$14,709	\$4,238	\$12,987	\$20,316	\$55,764	\$16,571	\$25,665	\$65,377	\$19,040	\$74,957	\$52,804	\$67,535
	Net Working Capital	\$10,471			(\$35,446)			(\$39,712)			\$22,153		
	Current Ratio		3.47			0.36			0.39			1.42	
	Quick Ratio			3.06			0.30			0.29			1.28
12	VANGUARD AIRLINES	\$2,194	\$2,033	\$1,549	\$9,861	\$8,704	\$5,132	\$11,943	\$33,553	\$5,679	\$11,943	\$33,553	\$5,679
	Net Working Capital	\$161			\$1,157			(\$21,610)			(\$21,610)		
	Current Ratio		1.08			1.13			0.36			0.36	
	Quick Ratio			0.76			0.59			0.17			0.17

Source: FAA, APO-310, April 1999. All costs are from December of the previous to the current year (latest year noted on the ACFS Quarterly).

* This year's financial information is NOT AVAILABLE for this small entity. This small entity was not operating as a large Form 41 passenger carrier during this year.

screening via an FAA certified EDS system. The FAA estimates this compliance effort would take place on a one-time basis and impose an additional 2 hours of clerical labor for each of the 12 small entities during the first year of compliance (2000 only), for a total of 24 hours (e.g., 12 x 2). In addition, air carriers would need to retain the annual CAPS training records for check-in air carrier personnel as evidence of compliance. The increase in the recordkeeping burden would be minimal for those air carriers to keep these additional training records; this increase is estimated as an additional 5 minutes per check-in agent per year for both the first year and subsequent years.

Each small airline would have, on average, 100 check-in personnel; hence, each small airline subject to part 108 employing CAPS will have an annual recordkeeping burden of an average of 8.3 hours of clerical labor per year for a period of 10 years (based on having compliance information available for personnel requiring CAPS training), for a total of approximately 100 hours (calculation: 12 small entities x 8.3 hours) per year. Therefore, the additional recordkeeping burden, which would apply to all of the small entities, imposed by the proposed rule would be 124 hours (calculation: 24 hours + 100 hours) in 2000 and 100 hours for each year during 2001 - 2009. The cost for this time would be \$2,600 or an average of \$218 per air carrier operator for 2000. For the subsequent years (2001-2009), the additional cost for this time for all small entities would be \$2,100 or \$176 per air carrier per year.

There are additional annual costs resulting from the collection of information. The first year (2000 only) estimated cost for the small air carrier operators is estimated to be \$523,200 or an average of \$43,600 per air carrier operator. For each of the years 2000 - 2009, the additional recordkeeping costs for all of the small entities would be \$96,500 per year or \$8,000 per air carrier per year.

All federal rules that may duplicate, overlap, or conflict with the proposed rule

The FAA is unaware of any federal rules that either duplicate, overlap, or conflict with the proposed rule.

Other Considerations:

Affordability analysis

For the purpose of this RFA, the degree to which small entities can "afford" the cost of compliance is predicated on the availability of financial resources. Initial implementation costs can be paid from either existing company assets such as cash, by borrowing, or through the provision of additional equity capital. Continuing annual costs of compliance may be accommodated either by accepting reduced profits, by raising ticket prices, or by finding other ways of offsetting costs.

In this analysis, one means of assessment of affordability is the ability of each of the small entities to meet their short-term obligations, as shown in Tables 11A (net income: columns B through E) and 11B (working capital and financial strength ratios). According to financial literature., a company's short-run financial strength is substantially influenced, among other things, by its working capital position and its ability to pay short-term liabilities.

Net working capital is the excess of current assets over current liabilities. It represents the margin of short-term debt paying ability over existing short-term debt. In addition to the amount of net working capital, two analytical indexes of current position are often computed: (1) current ratio and (2) quick ratio. The current ratio (current assets divided by current liabilities) helps put the amount of net working capital into perspective by showing the relationship between current assets and short-run debt. And the quick ratio (sometimes called the acid test ratio) focuses on immediate liquidity (cash, marketable

securities, accounts receivable, etc., divided by current liabilities). A decline in net working capital, the current ratio, and the quick ratio, over a period of time (say, 3 years, 4 years, etc.), may indicate that a company is losing financial solvency. Negative net working capital is an indication of financial difficulty. If a company is experiencing financial difficulty, it is less likely to be able to afford additional costs.

There is an alternative perspective to the assessment of affordability based on working capital of the proposed rule for CAPS. The alternative perspective pertains to the size of the annualized costs of the proposed rule relative to annual revenues. The lower the relative importance of those costs, the greater the likelihood of implementing either offsetting cost saving efficiencies or raising fares to cover increased costs without substantially decreasing passengers.

The financial information shown in Tables "11A" and "11B" suggest the following:

Liquidity Analysis/Profitability Analysis

- Based on current liquidity, at least three small entities would probably be able to afford the cost of compliance associated with this proposed rule. These entities have experienced increases in their net working capital as well as their current and quick ratios over the past three or four years, as shown in Table 11B. They are also generally profitable and may, therefore, have financial resources available to meet the requirements of this proposed rule.
- For one currently profitable small entity, its ability to afford the cost of compliance is less certain. This uncertainty stems from the fact that there is no financial performance history for the small entity from 1994 to 1996 because it has only been operating as a large passenger air carrier since second quarter of 1997. In 1997, this small entity had a net working capital in excess of \$40 million and its current and quick ratios are at

least 1.8, respectively. While this information is very positive, it does not necessarily serve as an indicator of future performance, especially in light of the proposed rule.

- For another air carrier, there is greater uncertainty than that for the aforementioned air carrier. Uncertainty for this entity is due to the fact that it has no financial performance history from 1994 to 1997. This lack of financial information is due to the fact that this air carrier did not receive its effective operating authority until mid 1997. Its ability to comply with the proposed rule and remain in business is unknown due to the lack of financial information on its performance history.
- The current liquidity of the remaining seven small entities will require action to finance the expected cost of compliance imposed by this NPRM. Over the past two or three years, each of these small entities has had negative net working capital. In addition, their respective current and quick ratios have generally been on a decline. They have frequently experienced financial losses.

Relative Cost Impact

- The other alternative of assessing affordability, annualized cost of compliance relative to the total operating revenues, for each of the 12 small entities impacted by this NPRM shows relatively small impacts for most of the small entities. As shown in Table 11C, columns D through F, the annualized cost of compliance relative to total operating revenues would be between 0.2 percent and 7.2 percent; in most cases, the impact would be less than 1.0 percent.
- For seven of the air carriers the ratio of annualized proposed rule costs to revenues would be less than 1.0 percent, on average, for the three-year period 1995 through 1997. For these air carriers, there appears to be a prospect of absorbing the cost of the proposed rule through some combination of fare increases and cost efficiencies. Even though the ratio of costs to revenues exceed 1.0 percent, on average, for the seven other air carriers, there is a prospect that two of these air carriers may have sufficient working capital to incur initial cost increases.

No clear conclusion can be drawn with regard to the abilities of some small entities to afford the cost of compliance that would be imposed by this NPRM. On one hand, the "Liquidity Analysis/Profitability Analysis" paints a bleak picture of the ability of some of the small entities impacted by this NPRM to pay near term expenses imposed by this rule, whereas the "Relative Cost Impact Analysis" indicates that more of those same small entities may be able, over time, to find ways to offset the incremental cost of compliance. As the result of information ascertained from both of these analyses, there is uncertainty as to whether all of the small entities would be able to afford the additional cost of doing business due to compliance with this NPRM. Because of this uncertainty, the FAA solicits comments from the aviation community (especially from small air carriers with less than 1,500 employees) as to what extent small operators subject to this NPRM would be able to afford the cost of compliance. The FAA requests that all comments be accompanied with clear supporting data.

Disproportionality analysis

The FAA does not believe any of the 12 small entities would be disadvantaged relative to large air carriers due solely to disproportionate cost impacts. All of the air carriers operating airplanes with 61 or more seats have to comply with the proposed rule for CAPS.

Many small air carriers are expected to incur lower costs relative to the size of their operations because these small airlines have reservation system sharing arrangements with some of the large air carriers. These small airlines would probably be able to employ the CAPS systems of their reservation system sharing partners and thereby avoid system development and maintenance costs.⁴² Thus, because of reservation system sharing

⁴² For instance, on average, initial year CAPS system development, testing, and implementation costs are expected to exceed \$1,000,000 for the majors while are expected

arrangements with larger air carriers, at least five of these 12 small entities may incur costs lower than they otherwise would.

As discussed in the operating cost of compliance section of this RIA for passenger baggage matching, major jet air carriers are expected to incur an estimated cost of \$30 per departure because of this proposed rule, while national and regional jet air carriers are estimated incur a cost of \$21 per departure. Some of the smallest air carriers that fall within the national and regional turboprop category would incur an estimated cost as low as \$6.00 per departure. In general, small entities are more likely to operate small aircraft than large aircraft. Hence, on a per operation basis, lower operating costs are anticipated for carriers which operate these smaller aircraft.

Competitiveness analysis

This proposed rule would impose significant costs on some small carriers, and as a consequence, it may have some impact on the relative competitive position of these carriers in markets served by them.

Since 1993, the rapid expansion of low fare service by a growing number of carriers in the United States has stimulated airline competition. Low fare carriers offer service at the same or nearby airports in competition with conventional major carriers. Low fare carriers' success relies on them having such low costs that they can offer prices that major carriers cannot match for large proportions of their flights. The low fare segment of the airline industry is still evolving, and the growth is causing changes within the U.S. air transportation system. In a 1996 study, "The Low Cost Airline Service Revolution", the U.S. Department of Transportation identified several low cost carriers.⁴³ Three of the small entities impacted by this proposed rule -- Frontier, Spirit, and Vanguard -- were among those

to be less than \$100,000 for these small entities.

⁴³ The study did not provide a definitive list of all low fare carriers.

identified in the 1996 DOT report. In addition, two other small carriers, Kiwi and Midway Airlines, which would be impacted by this proposed rule, may also be considered low price carriers. Although these five carriers compete extensively with major carriers, their low-fare strategies tend to establish price floors wherever they compete. Therefore, it would not seem reasonable to conclude that competitive pressures from other airlines would likely prevent these carriers from making very small increases in price if needed to offset the estimated costs of the proposed rule. The cost of the proposed rule is expected to be less than one percent of recent annual revenues for four of these five carriers and just over one percent of recent annual revenues for the other (see Table 11C).

At least two of the impacted small entities are regional carriers code-share with major airlines -- UFS Inc. with United and Alaska Airlines with US Airways and Northwest. Code-sharing is a device whereby in some markets regional carriers feed traffic to majors (and vice versa) rather than compete with majors for traffic. Thus, for the code-sharing small regional carriers impacted by this proposed rule, competition may be limited to competition with other regional airlines rather than with major airlines. In a similar vein, Air Wisconsin, one of the entities classified as a national (annual revenues between \$100 million and \$1 billion) is affiliated with United Airlines. For Air Wisconsin, annualized cost of the proposed rule may be less than one third of one percent of annual revenues (Table 11C). If this is the case, it seems unlikely that the cost impact of the proposed rule would reduce the competitiveness of that air carrier.

At least one of the remaining small entities -- Reeve Aleutian -- do not appear to compete with majors. Reeve is generally the

⁴⁴ Executive Airlines is now a wholly owned subsidiary of American Airlines.

TABLE 11C
SUMMARY OF FINANCIAL PROFILE OF PART 108 SMALL ENTITIES: Total Operating Revenues and Net Income (Profits and Losses)

Percentage of Compliance Costs of										
**** Total Operating Revenues ****				Total Revenues By Air Carrier and Year			***** Net Income *****			
Air Carrier (Domestic Operations)	Domestic Operations: Total Oper. Revenues	Domestic Operations: Total Oper. Revenues	Domestic Operations: Total Oper. Revenues	Percentage of costs of Tot. Revenues (Col. J/Col. A)	Percentage of costs of Tot. Revenues (Col. J/Col. B)	Percentage of costs of Tot. Revenues (Col. J/Col. C)	Domestic Operations: Net income (Loss)	Domestic Operations: Net Income (Loss)	Domestic Operations: Net Income (Loss)	1 O-Year Annualized cost of Compliance
	1995, \$000	1996, \$000	1997, \$000	1995	1996	1997	1995, \$000	1996, \$000	1997, \$000	1998, \$000
	Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J
No. NATIONALS:										
1 AIR WISCONSIN AIRLINES CORP - UNITED	\$116,932	\$132,442	\$140,982	0.2%	0.2%	0.2%	\$3,124	\$3,790	\$3,675	\$266
2 MIDWAY AIRLINES CORP	\$43,334	\$179,014	\$186,276	1.3%	0.3%	0.3%	(\$116)	(\$4,496)	\$23,495	\$581
3 KIWI INTERNATIONAL	\$170,563	\$144,360	\$71,845	0.8%	0.9%	1.9%	(\$771)	\$1,261	(\$20,600)	\$1,335
LARGE REGIONALS:										
4 AIR TRAN AIRLINES	\$367,757	\$219,636	\$198,078	1.0%	1.6%	1.8%	\$67,683	(\$41,483)	(\$86,833)	\$3,510
5 MESABA AIRLINES	N/A	N/A	\$147,138	N/A	N/A	2.3%	N/A	N/A	\$11,038	\$3,409
6 FRONTIER AIRLINES	\$55,655	\$109,511	\$138,323	1.5%	0.8%	0.6%	(\$8,208)	(\$37)	(\$15,468)	\$859
7 REEVE ALEUTIAN AIRWAYS INC	\$24,246	\$27,259	\$29,636	0.5%	0.5%	0.4%	(\$1,698)	(\$1,930)	(\$2,376)	\$131
8 SPIRIT AIRLINES INC	\$53,612	\$62,961	\$80,961	1.3%	1.1%	0.9%	\$2,684	(\$4,818)	(\$609)	\$700
9 UFS INC [UNITED EXPRESS]	\$53,220	\$54,557	\$56,160	0.4%	0.4%	0.4%	\$1,840	\$1,593	\$514	\$207
MEDIUM REGIONALS:										
10 PROAIR AIRLINES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$193
11 EASTWIND AIRLINES	\$2,821	\$13,023	\$17,870	7.3%	1.6%	1.2%	(\$2,711)	(\$5,051)	(\$6,557)	\$206
12 VANGUARD AIRLINES	\$36,188	\$68,589	\$81,384	2.0%	1.1%	0.9%	(\$11,362)	(\$24,057)	(\$21,690)	\$735

N/A - Not Available because the subject air carrier was not certificated to operate as a large passenger air carrier for this year. However, Proair and Mesaba Airlines commenced their operations during either the Spring or Summer of 1997

sole provider of scheduled service to the small Alaskan towns that constitute the majority of nodes on its routes.

There is an aspect other than increased cost per se associated with the proposed rule that may effect competition. The cost of compliance for carriers may be less for carriers if they link to an existing computer reservation system (CRS) which has been modified for CAPS rather than building a new stand-alone CAPS system. Thus, the proposed rule may tend to increase the reliance of national and regional carriers on CRS systems controlled by major airlines. This, in turn, may tend to increase the competitive advantage of majors because they determine the terms and cost of CRS use.

While the preceding discussion points out potential impacts of the proposed rule on the competitiveness of small entities, there is uncertainty associated with what the actual impact that this proposed rule would have on the level of competition within the U.S. airline industry and small airlines in particular. The FAA solicits comments on this issue. Specifically, commenters are asked to provide information on the impact this proposed rule would have on the continued ability of small airlines to compete in their current markets. Comments are especially sought from Form 41 operators impacted by this proposed rule with 1,500 or fewer employees. The FAA requests that supporting data on markets and cost be provided with the comments.

Business closure analysis

The FAA is unable to determine with certainty the extent to which those small entities that would be significantly impacted by the proposed rule for CAPS would have to close their operations. However, the profitability information shown in Table 11A and the affordability analysis can be indicators in business closures.

In determining whether or not any of the 12 small entities would close business as the result of compliance with this proposed

rule, one question must be answered: "Would the cost of compliance be so great as to impair an entity's ability to remain in business?" A number of these small entities are already in serious financial difficulty, and one small entity has already filed for bankruptcy under chapter 11. To what extent the proposed rule makes the difference in whether these entities remain in business is difficult to answer. Since there is uncertainty associated with whether some of the small entities would go out of business as the result of the compliance cost of this proposed rule, the FAA solicits comments from the aviation community as to the likelihood of this occurrence. As noted previously in the "Affordability Analysis" section, the FAA requests that all comments be accompanied with clear supporting data.

Alternatives Considered

The following alternatives considered by the FAA have a range of compliance costs between \$10 million and \$122 million over a 10-year period. A discussion of these alternatives to the proposed rule follows:

Alternative One - Status Quo

Under this alternative, the practice of maintaining the current policy for security of checked baggage on domestic flights would continue. Currently, the FAA mandates manual passenger profiling or passenger baggage matching only in situations where the FAA has determined that a heightened threat exists. Continuing with this policy would be the least costly course of action, but also would be less safe than the proposed rule. The FAA believes that the threat to civil aviation within the United States has increased and further rulemaking is necessary. Thus, this alternative is not considered to be acceptable because it permits continuation of an unacceptable level of risk to U.S. airline passengers.

Conclusion: Under this alternative, there is a likelihood of one or more terrorist acts resulting in Class I Explosions involving large commercial airplanes that operate within the United States (discussed previously in the benefits section to this RIA).

Alternative Two - Current proposal only applies to small entities when a specific threat exists.

Under this alternative, all small entities subject to part 108 would be required to implement requirements identical to those of the proposed rule. However, such requirements would only take place when the FAA's Assistant Administrator for Civil Aviation Security (ACS) notifies the certificate holder in writing that a security threat exists with respect to a particular operation. Small operators with 61 or more passenger seat airplanes and 1,500 or fewer employees would only be required to have a "standby security provision" to implement CAPS and passenger baggage matching for selectees.

This alternative may reduce the potential cost impact to the small entities. For example, small airlines might incur the initial implementation cost estimated for the proposed rule but avoid annual operating costs. The potential cost of compliance associated with this alternative is estimated to be \$10 million (\$9 million, discounted) over 10 years for all 12 small entities potentially impacted by this proposed rule. This cost estimate assumes that potentially impacted small entities would only incur startup costs in order to be prepared in the event the Assistant Administrator for ACS directs that they implement and operate a CAPS program identical to that of the proposed rule. Further, this analysis assumes that air carriers could respond immediately to a CAPS program request, using existing personnel in the short run.

The proposed rule is based upon the premise that a terrorist or criminal is not likely to ignore a larger aircraft

(determined by FAA to be those with seating configurations of 61 or greater seats) merely because it is operated by a small entity. Accordingly, this alternative is not considered acceptable because it is unlikely to counter the existing terrorist threat.

Conclusion: This alternative would impose the smallest incremental cost of compliance on small entities subject to part 108, and it would not impose a significant economic impact on a substantial number of such small entities, as shown in Table 12. This alternative would provide minimal improvement in protection against terrorism because it would be implemented only after an airlines was known to be a target. This alternative is rejected on the basis that it would permit an unacceptable level of risk to continue **and** would jeopardize FAA's intent to address current security concerns related to U.S. civil aviation.

Alternative Three - Small entities do nothing when receiving passengers from a large entity air carrier that has applied the proposed rule.

The proposed rule could be revised to require small entities subject to the proposed rule to apply its provisions only to originating passengers. Under this alternative, when a passenger transfers from a large entity to a small entity (where the flight is to the passengers' final destination), that small entity would not be required to perform additional security measures required by this proposed rule. The small entity would be required to implement the proposed rule, however, in the reverse situation where passengers originated on a small air carrier and then transferred to a larger air carrier. From a security perspective this alternative is unacceptable to the FAA because it removes the highly desirable redundant aspect of subjecting passengers to a security assessment on every leg of their journey.

TABLE 12 - RFA ANALYSIS OF SIGNIFICANT COST IMPACT: ALTERNATIVES 1 - 5
(1998 Dollars, 10 Years)

Air Carrier	1% of 1998 Annual Median Revenues for Small Entities Impacted by NPRM ¹	Annualized Costs of Alternatives					Significant Econ. Impact? (Yes = Y or No = N)						
		Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	CAPS NPRM	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	
		Status Quo	Standby	Orig. Pax's	1 % CAPS								
NATIONALS:													
KIWI INTERNATIONAL	\$823,000	\$0	\$37,225	133,119.91	241,415.79	\$266,240	N	N	N	N	N	N	
AIR WISCONSIN AIRLINES CORP-UNITED	\$823,000	\$0	\$45,442	290,563.94	681,346.25	\$581,128	N	N	N	N	N	N	
MIDWAY AIRLINES CORP	\$823,000	\$0	\$27,235	667,714.39	1,211,038.95	\$1,335,429	N	N	N	N	Y	Y	
LARGE REGIONALS:													
AIR TRAN AIRLINES	\$823,000	\$0	\$395,686	1,755,079.84	2,642,314.49	\$3,510,160	N	N	Y	Y	Y	Y	
MESABA AIRLINES	\$823,000	\$0	\$120,151	1,704,500.61	2,566,166.25	\$3,409,001	N	N	Y	Y	Y	Y	
FRONTIER AIRLINES	\$823,000	\$0	\$81,301	429,674.34	779,223.59	\$859,349	N	N	N	N	Y	Y	
SPIRIT AIRLINES INC	\$823,000	\$0	\$16,194	350,219.59	527,263.93	\$700,439	N	N	N	N	N	N	
UFS INC [UNITED EXPRESS]	\$823,000	\$0	\$18,362	103,548.08	281,437.34	\$207,096	N	N	N	N	N	N	
REEVE ALEUTIAN AIRWAYS INC	\$823,000	\$0	\$1,039,122	65,665.49	119,085.76	\$131,331	N	Y	N	N	N	N	
MEDIUM REGIONALS:													
PROAIR AIRLINES	\$823,000	\$0	\$45,442	96,463.32	174,956.30	192,926.64	N	N	N	N	N	N	
EASTWIND AIRLINES	\$823,000	\$0	\$27,235	102,806.37	186,460.74	205,612.74	N	N	N	N	N	N	
VANGUARD AIRLINES	\$823,000	\$0	\$102,730	367,372.83	666,238.46	734,745.66	N	N	N	N	N	N	
10-Year Incremental Costs by Alternative		\$0	\$9,837,000	\$61,225,000	\$98,922,000	\$122,450,000							
10-Year Incremental PV Costs by Alternative		\$0	\$9,194,000	\$42,611,000	\$70,777,000	\$85,221,000							
REPRESENTS TURBOPROPS													

¹ Represent scheduled part 121 air carriers with at least one airplane with 61 or more pax seats.
Source: U.S. DOT, FAA, APO-310, April 1999.

The potential cost of compliance associated with this alternative is estimated to be \$61 million (\$43 million, discounted) over 10 years, for all 12 small entities potentially impacted by this proposed rule. This cost estimate was derived on the premise that the proposed rule would only apply to those flights that are originated by the small entities. Since half of the passengers carried by small entities are received from larger air carriers, the potential cost of the CAPS proposed rule would be proportionate to number of passengers originating from the small carriers. This analysis assumes that about 50 percent of passengers carried by such small entities represent originating passengers. Thus, the cost of this alternative would be half of that cost imposed by the proposed rule.

Conclusion: While the potential safety level of this alternative is higher than that of alternative two, it is significantly lower than that of the proposed rule. It would also not impose a significant economic impact on a substantial number of such small entities. However, this alternative would achieve only 50 percent of the potential safety of the proposed rule. Therefore, this alternative is rejected on the basis that it would generate an unacceptably high level of risk by jeopardizing FAA's intent to address current safety concerns related to U.S. civil aviation security.

Alternative four - Small entities apply proposed rule on smaller scale.

The proposed rule could be revised to allow small entities to apply CAPS, but for a smaller number of selectees. Under this alternative, the rate for selectees would be one percent (as opposed to five percent for the proposed rule). The cost savings to small entities would depend on the magnitude of the reduction in the number of selectees (about 80 percent). However, in the absence of prudent security reasons for

reducing the number of selectees, this alternative would be extremely difficult to defend. Under this alternative, 80 percent of the baggage of passengers identified as those presenting a higher risk under the proposed rule would be allowed to go through the system without undergoing additional security measures. Thus, under this alternative, considerable risk could still remain that would be mitigated by the proposed rule.

The potential cost of compliance associated with this alternative is estimated to be \$99 million (\$71 million, discounted) over 10 years for all 12 small entities potentially impacted by this proposed rule. This cost estimate is based on the premise that small entities would primarily experience a reduction in delay costs of about 80 percent of that to be incurred under the proposed rule. With 80 percent fewer passengers as potential selectees, problems with reconciliation of baggage would be significantly reduced. This impact is assumed to be linear, for lack of more accurate information. According to technical personnel with SABRE, small changes in the selectee rate (between 1% and 20%, for example) would have mainly a linear affect on delay costs. That is, a 10% selectee rate would have twice the delay costs than a 5% selectee rate, etc. There may also be reductions in startup and operating costs, though to what extent is unknown.

Conclusion: This alternative would impose a lower cost of compliance on part 108 small entities than the proposed rule. It would not impose a significant economic impact on a substantial number of small entities, as shown in Table 12. However, this alternative (when compared to the proposed rule) would provide a less secure aviation flight environment to small operators and passengers. Therefore, this alternative is rejected on the basis that it would not sufficiently reduce the risk of explosions due to terrorism.

This alternative would only generate potential security benefits of about 20 percent ($1/5 = 20\%$) of that of the proposed rule.

Alternative Five - The CAPS NPRM (Preferred)

This alternative represents the proposed rule for CAPS. Under this alternative, small entities (in addition to any other operators subject to part 108 utilizing 61 or more seat airplanes) would be required to either implement CAPS estimated to identify 5 percent of all boarding passengers for passenger baggage matching, or implement 100 percent passenger baggage matching, or use EDS (where available). The cost of compliance expected to be incurred by the 12 small entities subject to the requirements of the proposed rule is estimated to be \$122 million (\$85 million, discounted) over the next 10 years. This alternative is the most preferred of all of the aforementioned alternatives because it would impose costs and generate benefits in a manner that would create the best balance between the cost of doing business for all applicable operators subject to part 108 and enhanced aviation safety (in the form of risk reduction) for the traveling public (including operators).

A summary of the RFA analysis for all of the alternatives reviewed is shown in Table 12, for each of the 12 potentially impacted small entities.

VII. INTERNATIONAL TRADE IMPACT STATEMENT

This proposed rule would not present a significant impediment to either U.S. firms doing business aboard, or foreign firms doing business in the United States. The proposed rule would only apply to and impact those part 108 scheduled air carriers (with more than 60 passenger seats) that conduct operations in the United States. Foreign air carriers do not compete with U.S. domestic air carriers in providing air transportation within the

United States. Air carriers that conduct operations outside of the United States are subject to a 100 percent passenger baggage matching, which is a more stringent requirement than contained in this proposal.

VIII. INITIAL UNFUNDED MANDATES ASSESSMENT AND ANALYSIS

A. Applicability of the Unfunded Mandates Act

Title II of the Unfunded Mandates Reform Act of 1995 (the Act), enacted as Pub. L. 104-4 on March 22, 1995, requires each Federal agency, to the extent permitted by law, to prepare a written assessment of the effects of any Federal mandate in a proposed or final agency rule that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more (adjusted annually for inflation) in any one year. Section 204(a) of the Act, 2 U.S.C. 1534(a), requires the Federal agency to develop an effective process to permit timely input by elected officers (or their designees) of State, local, and tribal governments on a proposed "significant intergovernmental mandate. A "significant intergovernmental mandate" under the Act is any provision in a Federal agency regulation that would impose an enforceable duty upon State, local, and tribal governments, in the aggregate, of \$100 million (adjusted annually for inflation) in any one year. Section 203 of the Act, 2 U.S.C. 1533, which supplements section 204(a), provides that before establishing any regulatory requirements that might significantly or uniquely affect small governments, the agency shall have developed a plan that, among other things, provides for notice to potentially affected small governments, if any, and for a meaningful and timely opportunity to provide input in the development of regulatory proposals or rules.

Since this proposed rule contains a private sector mandate with a potential cost impact of more than \$100 million annually, the requirements of Title II of the Unfunded Mandates Reform Act of

1995 do apply. For this reason, an assessment of the Unfunded Mandates Act on the impacted private sector is discussed below.

B. Unfunded Mandates Act Impact Assessment

To assess the potential impact of the Unfunded Mandates Reform Act (Act) of 1995 on this proposed rule, the Act identifies six components that must be addressed in the assessment of this proposed rule. Each of those components is discussed below.

1. Provision of Federal Law Under Which the Proposed Rule is Being Promulgated

The legal basis for the proposed rule is found in 49 U.S.C. 44901 et seq. Among other matters the FAA must consider as a matter of policy are maintaining and enhancing safety and security in air commerce as its highest priorities (49 U.S.C 40101(d)).

2. Assessment of the Anticipated Costs and Benefits of the Federal Mandate

a. Estimate of Costs

The proposed rule would impose an estimated cost of \$2.8 billion (\$2.0 billion, discounted) over 10 years. This cost estimate is composed of three components: 1) Passenger Baggage Matching costs (\$2.2 billion; \$1.6 billion, discounted), 2) Passenger Baggage Matching flight delay costs (\$473 million; \$327 million, discounted), and 3) CAPS program costs (\$70 million; \$51 million, discounted). During the first year of the proposed rule (1998), which is also the most costly, part 108 air carriers are expected to incur costs of approximately \$456 million (\$426 million, discounted). This estimate includes fixed and recurring cost components.

b. Estimate of Benefits

The primary benefit of the proposed rule would be significantly increased protection to Americans and others

traveling on U.S. domestic air carrier flights from the increasing threat of acts of terrorism. Specifically, the proposed rule is aimed at preventing explosives from being placed on board commercial flights in checked baggage. In order for security benefits to offset compliance costs, a terrorist act (such as a Class I Explosion) resulting in 380 aviation fatalities (including other types of casualty losses such as aircraft replacement, market loss, etc.) would have to be avoided over the 10 years.

c. Estimates of Future Costs of Compliance of the Federal Mandate

For the 32 aircraft operators that would potentially be impacted by the proposed rule, the total annual costs in each of the next 10 years would be greater than \$100 million. The total cost of the proposed rule for the 10-year period (in 1998 dollars) would be approximately \$2.8 billion (\$2.0 billion, discounted) and the annualized present value of the costs of compliance would be approximately \$284 million per year. A more detailed discussion of costs is shown in the analysis of costs section of this regulatory impact analysis.

d. Estimates of Disproportionate Budgetary Effects of the Federal Mandate

The 32 aircraft operators that would be impacted by the proposed rule are widely dispersed across the United States, as evident by their respective hub locations. For example, Delta Airlines has its main hub in Atlanta, GA; United Airlines has its main hub in Chicago, IL; American and Southwest Airlines main have their main hubs in Dallas, TX. Smaller air carriers (namely, regionals) also have their main hubs dispersed similarly to the majors and nationals since they primarily carry their passengers into small hub airports. It is for these reasons that the proposed rule would not impose any disproportionate budgetary effects on

any particular region of the country. The proposed rule would, however, impose costs on a particular segment of the private sector as noted previously in the estimate of costs section of this Unfunded Mandate Act Analysis.

e. Estimates of the Effect of the Federal Mandate on the National Economy

As the result of the proposed rule, the impacted part 108 aircraft are expected to increase staffing and training of airport terminal personnel. There is insufficient information to be able to estimate the multiplier effect the additional jobs spurred by this proposed rule would have on the local economy in the form of a lower unemployment rate, added tax revenues, and increased sales for consumer goods on local communities and the national economy. The FAA is reasonably certain that the creation of additional jobs by the proposed rule would have a positive impact.

f. Discussion of the Least Burdensome Regulatory Alternative

The FAA has identified four alternatives to the proposed rule in addition to maintaining the status quo: (1) require mandatory EDS (phased in) without CAPS, (2) require 100% Passenger Baggage Matching during phase-in of EDS, (3) require random Passenger Baggage Matching during EDS phase-in, or (4) require Passenger Baggage Matching on only some CAPS selectees. Section V of the regulatory impact analysis describes the four alternatives to the proposed rule as well as the costs to implement them. The FAA contends that using CAPS to identify those passengers who possibly are a threat to the security of a flight and requiring Passenger Baggage Matching or screening by EDS, where EDS is available, is the most practical and cost-beneficial alternative currently available to increase the level of security on domestic flights. A more detailed discussion of alternatives is shown in the analysis of alternatives section of the RIA.

C. Conclusion

The FAA has determined that the cost of compliance of the proposed rule would be greater than \$100 million in each of the 10 years, but the economic impact on State, local and tribal governments would not exceed the \$100 million threshold. The proposed rule would impose a Federal mandate of greater than \$100 million per year on the private sector. Of all of the alternatives examined in this assessment of the Act and the analysis of alternatives section of the RIA, the proposed rule provides the largest net benefit.

Appendix A

DERIVATION OF EDS COSTS AND UNIT REQUIREMENTS FOR RIA ALTERNATIVES

Derivation of EDS Costs and Unit Requirements

Based on information available, the FAA makes the following cost assumptions for the acquisition of an EDS:

- Each unit would cost \$1 million;
- Over the course of a day, each unit would require six operators. Training for each operator is expected to be \$3,280, for a total of \$19,700 per unit. Each unit would operate, on average, for two shifts per day;⁴⁵
- The life expectancy of each unit is 5 years;⁴⁶
- Airport space rental (including any structural modifications as well as providing space, utilities, and other necessary site services) is estimated at \$20,200 per unit annually;
- Annual maintenance and repair costs would be \$96,000 per unit;
- Fully loaded salary (i.e., including fringe benefits) are expected to be \$15,150 per operator;
- Operator turnover is expected to be 25% per year. Replacement operators would need to be trained, so replacement training costs would be \$4,925 per year.

The FAA estimated the number of EDS units required by looking at the number of originating domestic passengers per U.S. airport. To obtain the daily average number of outbound passengers, the

⁴⁵ The FAA assumes that the system-wide requirements for all airports would average two shifts per day. For those airports that operate 24 hours, three shifts of personnel would be required. However, this average needs to be combined with the requirements for the larger bulk of smaller airports that do not operate around the clock, do not have large luggage handling requirements, and do not have a constant flow of traffic. At these airports, the demands for the EDS operators would not be constant; there would be slack time that can, and probably would, be used for other tasks. Accordingly, the demands for operators at such airports would be less than or equal to two shifts. Thus, taking into account all of these factors, the FAA determines that the daily system-wide requirements would average two shifts. Each shift would require two operators; as six would be trained per unit, this allows for one back-up per shift.

⁴⁶ This life expectancy is due to obsolescence, driven primarily by computer advances. This 5 year life span estimate is based on medical CT experience. Knowledge available to the FAA indicates that these machines probably would function for longer than 5 years, and it is possible that as new technology comes on line and as newer machines are installed in the larger, busier airports, these older EDS' would be moved to smaller or less busy airports. Hence, calculating costs based on replacing machines after 5 years would be a worst case scenario. If costs were calculated assuming that all machines would last for at least 10 years and the older machines were moved to smaller, less busy airports, total EDS costs would decrease by about 19%.

annual number of outbound passengers for each airport was divided by 365 days.

This resultant daily average was then adjusted to reflect a peak hour percentage. This adjustment reflects the fact that aircraft departures are not uniform during the day; there are certain times of the day that there are more departures than others. The reason for this peak hour adjustment is so that the use of these systems would not result in additional flight delay. This adjustment is done by calculating the number of systems needed for the maximum passenger requirements that would occur at the peak volume hour. FAA data indicate that, on average, peak hour domestic outbound traffic is 15% percent of total daily domestic outbound traffic; in other words, 15% of those days' flights happen during that time period. Hence, the total number of flights per airport was multiplied by 15% to determine the number of flights at each airport's peak time. '

Information furnished to the FAA by the Air Transport Association of America (ATA) shows that domestic travelers carry an average of 1.5 checked bags per trip. The number of passengers at the peak hour, broken down at each airport for the numbers of domestic passengers, was then multiplied by the appropriate average number of bags per passenger to yield the total number of checked bags per peak hour.

The number of EDS required at each airport was calculated assuming a throughput rate of 254 checked bags screened per hour per system. Thus, to calculate the number of systems required at the peak hour at all affected airports, the total number of checked bags, at each airport, was divided by 254 bags per hour, with the resultant figure being rounded up.^{47 48}

⁴⁷ For example, if a location has a peak requirement of 318 checked bags per hour, the calculated number of required systems of 1.25 (318 divided by 254) would be rounded up to two as two systems would be needed to examine all baggage in the peak hour period.

⁴⁸ For those airports where the total peak baggage demand was less than 40 bags per hour, the FAA assumed that that airport would not purchase an EDS, but would use an alternative means, such as physical search or PPBM, to screen bags. Since the total number of

Finally, the number of EDS was modified by calculating the increase in domestic departures as forecast by the FAA to arrive at the total number of required units for the ten-year period. Based on these forecasts, the FAA estimates 800 units would be needed, and would be acquired, in equal numbers, over a ten-year period.⁴⁹

originating passengers at these airports is less than 1%, the additional cost of these alternative means were not costed out.

⁴⁹ The Aviation Security Improvement Act of 1990 provides that the FAA may not require deployment of explosives detection equipment unless the FAA certifies that such equipment would detect explosive devices of the type likely to cause catastrophic damage to air carrier aircraft. Since this has not yet occurred, the technology does not yet exist to mass produce FAA certified EDS units. Accordingly, the FAA can not assume that all these units would be available immediately, and is instead assuming a ten year procurement scenario.